Henri Wald

Introduction to Dialectical Logic

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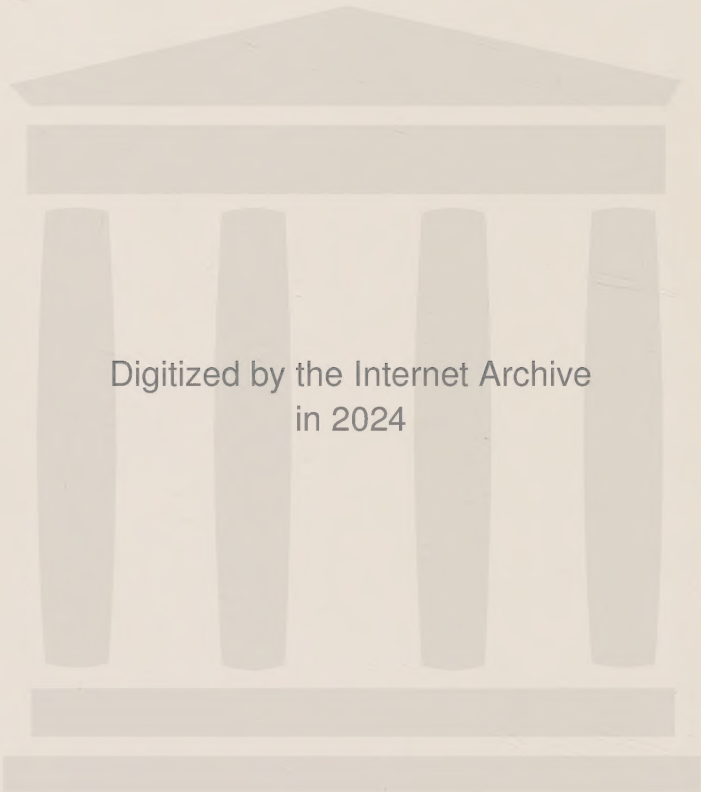
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INTRODUCTION TO DIALECTICAL LOGIC

Henri Wald

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Introduction to Dialectical Logic

by

Henri Wald

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I. INTRODUCTION

OBJECTIVE AND SUBJECTIVE IN CONTEMPORARY THINKING

"What has constantly been beyond our knowledge is that we can have knowledge of the world" Albert Einstein once wrote. There is many a thinker denying that subjective cognition can grasp the real object. After asserting that "there is no means whatsover to refer knowledge of an object to the known object", Eric Buyssens concludes: "Objective is said to be that idea commonly agreed by people, which, however, leaves unchanged its subjective character". Saying that "our poor or derisory world is but the projected image of our failures" Amedée Ponceau also concludes that "there is no point in organizing existence into idea, but to make our way into it."

Most non-dialectical researchers deplore the fact that "our abstract ideas are anthropomorphic"...

True, by devising the implement and speech man has succeeded to "emerge" from nature to oppose it, to undertake its knowledge and mastery. But between man and nature, between subject and object there is not only the opposition that triggers off the process of knowledge, but the unity ensuring objectivity of knowledge as well. As subject, man opposes nature, whereas as object, man continues to belong in nature. Man can only gain his subjective freedom to change the world by obeying its objective necessity. He fails to master phenomena through practice, unless by submitting to their essence through theory. There is not only a "natural metabolism" between organism and environment, but a "cultural metabolism" between subject and object as well.

Obviously, there are no logical forms or scientific truths in nature. Knowledge is man's construct. By devising the means of production and of communication, nature turns into object and human intentionality into subject. Man can know only humanly what is independent of him. People's outlook on the world can be anthropomorphic only. But, then, anthropomorphic is only the form by which the object comes to be known to the subject. The genesis of knowledge is subjective. However, knowledge mirrors the very object since the future behavior of phenomena and human action's effects upon them are equally predictable. The opposition between man and nature does not nullify the *unity* between man and nature. There is a relationship between ideas and things that is more akin to a meat-and-soup correlation than to the cloakroom number and the respective

overcoat... The very structure of language, in which and through which ideas are born, resembles the structure of things: much the same as the sounds of language are sensitive and meanings — intelligible, so phenomena are sensitive and essence intelligible.

Objectivity of knowledge does not stem from social agreement ; on the contrary, social agreement stems from the objectivity of knowledge. Society is but the necessary, though insufficient, environment for the subject to build up his objective knowledge. Objectivity is that property of an idea to adequately reflect reality. The organizational value of a conception stems from its cognitive value. Truth is no convention, it is an idea accurately mirroring reality.

Nevertheless, it is equally true that the unity between man and nature does not discard the opposition between man and nature. Norbert Wiener used to say that "nature does not lend itself to deciphering without resistance, but then, it does not prove too resourceful, either, to prevent any communication between the external world and us". However, nature's resistance requires considerable creative, imaginative efforts on the part of the subject to reach understanding of the object. Even though indifferent rather than hostile, the object compels the subject to a steady initiative in knowledge. Without the subject's activity the object is only nature and truth is impossible.

The present battle between structuralism and phenomenology is actually a confrontation between object metaphysics and subject metaphysics. Only dialectical thinking can understand the transition of matter into spirit and of determinism into freedom.

1. STRUCTURALISM

Positivism, first as empiricism and pragmatism, then as empirio-criticism and empirio-symbolism, has contested throughout its history the objective existence of general properties, reducing the object to the subject's perceptions and operations and restricting science to the various possible modes of coherent, non-contradictory organization of sensitive experience. With positivists, ontology is reduced to gnoseology, and then, gradually, gnoseology to logic and logic to a syntax of scientific language. The positivists' world, thus, loses its explainable depth, and it is reduced to a describable and organizable surface. Under the circumstances, science no longer has a cognitive function, but only a descriptive and organizational one: it describes and organizes the relations between the subject's perceptions and operations.

In the absence of any opposition from the object, the subject ultimately becomes lost within the vacancies in the symbols' network which helps

him organize his sensitive experience. The structure of scientific language is getting alien from the subject, it is becoming objectified, reified, constraining and assuming some occult force of destiny. In this way, the object takes revenge on the subject. Positivist subjectivism reverts to structuralist objectivism. Structuralism is the Weltanschauung of this historic moment where the means tend to get out of the aim's control.

While positivism was the individual's protest against the canonized universal, structuralism means bowing to technocratically placing the means above the aim and of bureaucratically raising society above the individuals. The disasters of the last decades have bred an intellectual atmosphere, pushing the "whole" to the fore, while leaving its component "parts" in the dark.

Structuralism worships structure at the expense of elements and components, structural analysis at the expense of generalizing induction. In the view of structuralists, structures are dissolved into relations, whereas relational things are absorbed in the relation among things. According to them, the elements making up a structure are themselves void of meaning; they exist only differentially in a particular organizational system.

★

That things and our knowledge of them are *structures* has been long known. "Struo, struere, struxi, structum" meant to Latins, making up a whole out of several parts, whereas Aristotle, upon discovering the function fulfilled by a middle term in a syllogism, did nothing else than analyze the structure of deductive reasoning. And eversince, science has been analyzing the structure of inert things and living organisms, as well as the structure of the logical forms of knowledge. Not even Marx questioned the methodological value of the structural analyses that had led him to discover the infrastructure and superstructure of human society.

Any *object* of knowledge is a whole made of several parts and any *knowledge* of objects finally crystallizes in a system of knowledge. Structural analysis is a moment that knowledge must necessarily go through. Knowledge cannot come to reflect the essential properties of one kind of thing before showing how the various component parts of any thing belonging to that kind interrelate. Far better known have been the essential properties of heredity since the discovery of DRNA and the way they make up the polymer fibre in chromosomes.

Research into the social relations in which and through which people act is indispensable to the knowledge of man's essence. But man is not only a social being, he is also an individual being whereby determinism reverts to freedom.

The fact that the people were placed under the control of means and not the means under the people's control reawoke the belief in "one's lot".

Only this time fatality set its programme not through revelation in the "Scriptures" but directly in the "scriptures" carved in the structure of atoms, molecules, cells and human society. As long as ideas are under people's control, errors are removed in time; as soon as people fall under the control of ideas, errors become catastrophic and the belief in a force alien to people creeps back.

★

Structure exists, structural analysis is the method to know it, but structuralism as a mentality, by absolutizing relations at the expense of properties, hypertrophies determinism at the cost of freedom. Structuralism restricts time to space, spiritual significations to physical signals, explanation to description, culture to nature, creation to production, individual man to a system of social relations and history not even to evolution but succession. Where is such a structuralism to be found? Not in one particular book, but in several, and especially in the intellectual atmosphere of the epoch.

However, it is due to structuralism that science has added a new discipline, *semiotics*, and a new definition of man as well, deeper and more comprehensive than all the others, *homo significans*.

The requirement to study the object free from the subject's ambitions seems quite natural today. And, since unlike the *properties* of a thing, its *structure* is such as it *is*, no matter what the researcher's wishes are, structural analysis is an efficient method.

However, structuralism will not return to man and reinstate him to all his supreme goal prerogatives under whose light everything should be referred. By holding that it is not the people that act in *society*, but society that acts through the people, structuralism dissolves human personality in the social structure that it has emerged from and through which it acts. By reducing man to the condition of any being, structuralism reduces time to the present, thus annulling man's most human property: *the freedom to refute and to create*.

Being the only organization system of matter wherefrom more information output than input may result, man is an uninterrupted source of negentropy.

By his inexhaustible resourcefulness he fights disorganization, enhancing organization, he fights uniformization, adding to differentiation. The limits to human resourcefulness are not *logical*, but only *historical*. *Eternally* there is a limit but there is never an *eternal* limit.

"Death of information" would only occur if man were but a mere link in the natural chain of queries and answers. Nevertheless, by the negativity, interrogativity and creativity of his thinking, man succeeds in reversing

the meaning of the second law of thermodynamics. Anthropology is no "enthropology" as some structuralists hold; on the contrary, it is "negenthropology". Man is capable of saving nature itself from the avalanche of the rising entropy.

Unlike the elements making up the structure of one thing, human personality has the freedom to understand the development trend of social relations and speed up their improvement, sparing the human energies uselessly wasted along the various by-roads of history. That is why structuralism appears to me as an ideology *of resignation to the technocratic and bureaucratic tendencies of contemporary society.*

2. PHENOMENOLOGY

In the last analysis, phenomenology is a *philosophy of the paradise "from here"*. The philosophy of paradise "beyond" originates in the earliest thoughts on the world, when people tried to conclude pacts with the "soul" of things as they had started doing with the soul of their fellow people. They were too weak to be able to control things without appealing to their soul. It is in this way, through the countless religious variants — Christianity and Platonism especially — that this philosophy has survived to our days.

The various utopias attempted to oppose a paradise down here, on Earth, to the paradise beyond. The failure of the enterprise considerably increased the thirst for immobility, for absoluteness, for the eternity of philosophy. In the quest of a like philosophy some were seized with despair: positivist renunciation and existentialist dread fully express it.

Edmund Husserl, however, believed to have found it: *phenomenology*. "This idea of an ultimately valid philosophy, true in itself, can it be a mirage? Are there only philosophies in the plural?" he asks himself. He answers by construing a system where the paradise of souls is removed from the essence of the object into the essence of the subject. Phenomenology is a reverse theology: it provides a "transcendental heaven", diametrically opposed to the "transcendent heaven" of the various religions. For a phenomenologist, the essence of things no longer lies *beyond* the phenomenon, at the core of things or in heavens, but this other side of the phenomenon, at the bottom depths of the human ego. In characterizing his own philosophy, Husserl admits that it "is nothing else than an explication of my *ego* as subject of possible knowledge". Like Plato, Husserl places these ideas in a transcendental world of the subject, not in a transcendent world of the object; whence, unlike Platonic ideas,

Husserlian ideas have no real existence, but only an intentional one; they are not existences, but intentions, not entities, but functions.

Phenomenology claims to transcend the opposition between the phenomenon perceived and the *perception* of the phenomenon. "The subject is no longer pure subject, or the object pure object. The phenomenon is at the same time what is being revealed and what it reveals" (Jean Wahl). "The objects are pulled out of their dull fixity to sparkle in the play of rays travelling to and fro between giver and the given. A stir all while man builds his world which at the same time he belongs to" (E. Levinas). For fundamental "is neither the world nor the subject, but the agreement of man with the world. Not a term, but a relation, always an assumed relation, outside which isolated terms are meaningless" (Mikel Dufrenne).

It is in Camil Petrescu's substantialism that a phenomenological echo can be found. "Not the root doomed to stay in the ground or the modernist leaves renewed every year, but the very germinative principle, from root to foliage, the impulse to the sky, that which every organ is subordinated to is a tree. Deeply rooted in the past and extending far off into the future, always live, subsuming everything that is substantial. *That is, the continuing present*". In phenomenology, knowledge does not reproduce, but it produces things. It is a process whereby the subject's living polarizes to sensitive phenomena and logical essences. To a phenomenologist, the thing is not the contradictory unity between phenomenon and essence, but the fusion between a sensory complex and a logical essence. The thing is constituted by an act of reason; a sensory complex is ascribed a logical essence. The subject's living breeds the object through predication of a logical essence on a sensitive phenomenon: this is man. To know means to combine pure ideas with sensory content, all while intuiting these pure ideas in their purity. By reducing the phenomenon to perception and essence to notion, phenomenology is both gnoseology and ontology as well.

Just as in the Judaeo-Christian heaven, god "made man but of earthly dust and breathed life onto him", so in the Husserlian paradise, the subject builds the object through penetration of pure essence into a sensory complex.

Adding to the success of phenomenology is the fact that in these days, the object has come to move not only independently of the subject, but even against it. Phenomenology answers the object's hostility to the subject by the subject's hostility to the object. It opposes the illusory immobility of a transcendental subject to the alienating course of the object.

True, the object can only be known and ruled through the activity of the subject, but the subject is nothing else than a thinking object and eternity, nothing else than the utmost stability of the universal properties and the logical categories reflecting them. Eternity is not atemporal, it is rooted in temporarity.

The fact that language is not a mere attire to reason, but its very body arouses the irrationalists' adversity. By reducing knowledge to an affective intuition of nothingness, irrationalists look upon language as an obstacle to the real understanding of the world, as an integrant part of the original sin.

"By helping me act upon *Another*, language obscures him; he places a veil between ego and non-ego" writes Théodore Ruyssen. And J. Vernay also complains that "the matter of discourse (language) is also for the writer both the mediated necessary to creation and an inevitable treason of the harmonies devised in the calmness of thought".

Vladimir Jankélévitch is more categorical. "As a matter of fact — he writes — language is not a mere tool used in communication; this tool is obstacle as well, and it does not convey the meaning unless by hinderingit. Language is an obstacle-organ!".

By reversing the hierarchy established in the process of knowledge between affectivity and thought, irratiationalism accuses language of sharing in the establishment of logical forms that prevent the being from contacting the non-being.

Martin Heidegger also admits that "it is only to the extent to which man speaks that he thinks and not the other way round, as Metaphysics still thinks"[1], that "only a speaking, i.e. a thinking being, can have a hand, and, by handling, perform the hand's work"[2]. However, it is not the rational development of logical forms, but the intuition of nothingness at the moment of dread that he understands by thinking. The language in which and through which thoughts are bred interposes between being and non-being. Only at the moment when "dread chokes off our words", are we able to have a glimpse of nothingness. That is why Heidegger indignantly states that "thinking upon thinking develops as logic in the West"[3] and that "what mostly deserves thinking is that we do not think yet..."[4].

However, affectivity is not aimed at avoiding reason, on the contrary, it should stimulate knowledge to its structuration in logical forms, to subsequently prevent it from drying, fading and becoming commonplace.

Language, as a dialectical unity between speech and thought, has not only a cognitive, but also an emotional function; it does not hinder, but support the development of knowledge much the same as air does not prevent, but support the flight of birds. Not only is language a tool for

[1] Martin Heidegger, *Qu'appelle-t-on penser?*, P.U.F., 1959, p.90.
[2] *Ibid.*
[3] *Ibid.*, p. 33.
[4] *Ibid.*, p. 22.

conveying some already bred thoughts, but a tool for breeding thoughts, too. An idea that has not been crystallized in a particular verbal form is not yet an idea, but just a feeling of intellectual uneasiness. Thoughts are being bred while assuming their verbal expression.

Language shares in the discovery, preservation and conveyance of the constant and repetitive properties of things in the guise of knowledge. Primarily devised as a means of communication, language has shortly after become the major means of knowing the essential in things.

In the beginning, language was devised to convey incentives rather than news; it has long stayed as a means of action rather than a carrier of ideas.

Language touches the essence of things in its "infralogical" forms — particularly metaphor and word-order — in which people's pragmatic-affective life is crystallized. Style is not to be added subsequently to a language where a knowledge content has already been formed. Style is not the holiday attire of commonplace, but a tool indispensable to the process of knowing and transforming reality. In language, knowledge assumes logical forms in direct relationship with its infra-logical forms.

That the pragmatic-affective life crystallized out in the infra-logical forms of language is subordinate to reason, structured in the logical forms of knowledge, becomes obvious when the metaphor and word-order obscure the meaning, instead of conveying it. When no longer serving an idea, stylistic performances cease being emotional. Language is meant to assist the process of knowledge and its conveyance, not to hinder it. Language is a shock to people's sensitivity, causing them to meditate. A language which, as literalism wants it, would address sensitivity alone, would at most have only a therapeutic value: to remove outdated significations and make room for new ones...

For what fundamentally distinguishes man from all other beings is rooted in the interrogativity, negativity and creativity of his thinking.

4. INTERROGATIVITY

Speech makes man differ from all other beings, but questioning makes him attain full humanity. It took a long time for speech to transcend urge and indication and ultimately come to question. *Urge*, calling or ordering, and *indication*, showing or signalling, are not yet far from signalization in nature. Urge and indication continue to express, obviously on a higher level, affective needs and the imperative desire to meet them. At first, people communicated through *linguistic signs*, much similar to what animals did through *non-linguistic signs:* their immediate natural needs.

Passing from urge to indication and onto question marks off the progress from language formation to its development and perfection.

That question is superior to both urge and indication, is also proved by the fact that there comes a time when certain mentally defficients, stepping back on the evolutionary ladder, are no longer able to ask any question whatsoever, though they are still capable of providing some answers. On passing from urge to indication and onto question, speech is constantly freed from under the immediate pressure of pragmatic-affective reactions, thus allowing thinking to overstep the bounds of the present, to "*lunge*" into the future, to prospect "the unseen" and "the unknown". Through the question, speech not only turns more and more into the major means of communication of thoughts, but it also becomes the major means of breeding them. It is through question that speech becomes the major activity of thinking. The future is the most human dimension of time, whereas the question, by its capacity to intuit it, is the most human form of speech. Through the question, thinking uses the present to open up its path to what is absent : the unseen, the unknown, the future.

That is why, in the beginning the question was a sentence whose subject was referring to something seen, known and present, with a question mark instead of the predicate. I obviously mean the logical predicate not the grammatical one. In a question the predicate, the assertion or the negation of its relation to the subject may be missing, but the subject can never be absent, since it is being referred to. In the question "what's that?", it is the predicate and not the subject that is missing. "That" is the subject: what should be known is exactly what "that" stands for. The fact is proved by the reply stressing the predicate, which has always been the seat of the additional knowledge sought by the question: "That is *a stone*". Even if the answer reads: "*A stone* is that", the stress draws attention to the fact that behind the grammatical subject there is the logical predicate.

The cognitive superiority of question as against urge and indication is also reflected in the fact that the replies could be re-converted into questions, hence allowing for the dialogue to proceed. Establishing the dialogue initiates a trend of thought from the known subject to the unknown predicate. It is in the hindrance of replies and questions that the beginning of a regress originates.

There are only stimuli and responses in nature; only man is capable of asking questions and providing replies.

The question is a sentence adressing the other people, the question to nature is a *problem*, and the *hypothesis* is a provisional answer, still questionable.

In a problem-sentence, the subject aims at a particular effect, whereas the question mark stands for the predicate that will reveal the *essence* of

the phenomenon or *cause* of the effect; in a hypothesis, the question mark can be only the logical connection between subject and predicate: "X is (?) the cause of Y". The hypothesis seeks what it has already found; certainty is what it lacks.

Thus, having got used to query one another, men started querying nature, and finally queried themselves. Man alone can ask, particularly ask *himself*.

Without men's capability to constantly query the world and their ideas of it, thinking would be obscured by commonplace and culture's opposition to nature would be overcome.

5. NEGATIVITY

Any assertion implies negation. There is no assertion prior to negation. The first word proper that the child utters is "no!" and again "no" is the word marking off the final transition of anthropoid to man. Man is the outcome of the greatest revolt in the history of matter. By devising the tool and the speech, man succeeded in negating nature and asserting culture. In nature there is only attraction and repulsion. Negation and assertion are the tools of culture. Man is the only being that has succeeded in using his limbs and mouth not only to assimilate nature, but to contradict it, too. By means of the tool and the speech man has adjusted himself to nature and started changing it, he has stepped off the biosphere and started building the noosphere. By his materiality, man obviously belongs to nature but by his spirituality he has transcended nature and added culture to it. Through man, the world has acquired its second dimension: *spirituality*. Spiritual, not biological, power has permitted man to tame nature and impart human meanings to it.

The spirit has emerged from man's opposition to nature. The spirit is an act of opposition.But spirit does not negate nature in an absolute manner. By negating, it asserts. Without assertion, negation degenerates into negativism. The spirit refuses confinement to the sensitive mirroring of phenomena in order to mirror ever deeper essences, it refuses to stay bound to the present in order to prospect an ever more distant future, it refuses to linger in the concrete in order to build up ever higher abstractions, it refuses to stoop to successful achievements in order to make further progress. The spirit is the highest form of expression of man's disagreement with what already exists.

Spirit is not reducible to reason, to the logical forms of thinking, it is the process whereby man's aversions and aspirations have been converted into ideas. Spirit is the "field" extending between man's sensory and intellectual activities. Its genesis starts the moment when man, with the help

of the means of production and communication, succeeded in outdistancing the phenomenon, the present, the concrete and kept reality at an increasingly longer distance. Spirit does not come from some other world, it is the outcome of a dual world — nature and culture — the outcome of man's struggle against his environment. Man's power over the environment grows bigger with his extending and expanding the spiritual "field" between experience and intellect. The history of culture would never have existed had man not "seen" the silex knife in an unchopped stone and the metaphoric strength of speech in the warning cries. The better the "understanding" of the intellect of what experience "perceives", the greater the force of spirit over matter.

The *opposition* between man and nature generates spirit, but what enables the spirit to understand the world is the unity between nature and man. Control of events implies knowledge of laws. It is only phenomena that man can negate. Essences must be found. Ignoring essences makes human practice destroy nature and avert it from culture building.

More serious, however, is ignoring the unity between technical means and moral aims. We are living an historical moment when man's creations tend to negate man himself. Contemporary man is compelled to check out with ever greater care the very negation through which it has been formed. The discrepancy between the overdevelopment of man's material force and the underdevelopment of his spiritual force must be urgently negated.

6. REFLECTION AND CREATION

The concept of "reflection" has been increasingly controversial of late. Reduced to simple mirroring, reflection actually ceases to be an act of knowledge, and the theory of reflection becomes easily refutable.

"It is indispensable to dialectical materialism — Jacques Monod writes — that the "Ding an sich", the thing or phenomenon *in se* should reach the conscious level unaltered and unimpoverished, without any prior selection of its properties. The exterior world should literally find itself in one's consciousness in the whole totality of its structure and motion"[5].

But the materialist-dialectical theory of reflection does not contest, on the contrary, it enhances the subject's creative contribution while getting knowledge of the object. Reflection means not only "discovery", but "invention" as well. The essence of things is undiscoverable without speech which helps men build their ideas. The subject's share in reflecting the object increases with knowledge proceeding from the empirical assessment

[5] Jacques Monod, *Le hasard et la nécessité*, Seuil, Paris, 1970, pp. 48—49.

of facts to the formulation of scientific laws onto the statement of philosophic principles. In its infinity, the object can be discovered by the subject only by devising an infinite sequence of finite words. Hence, the relativity and historicity of truths wherefrom countless generations have built the Absolute truth...

But the fact that man can but *humanly* reflect what is independent of him does not mean that ideas are an obstacle to knowledge. I do not think J. Monod is right in stating that "the radical exigency of 'the perfect mirror' explains the obstinacy of materialist dialecticians in repudiating any kind of critical epistemology, instantly stammed as 'idealistic' and 'Kantian' "[6].

Materialist dialecticians do not refute Kantian criticism on account of the "perfect mirror" but on account of "adequate reflection". It is clear to every Marxist that in order to reflect essences rationally the dialectical transgression of the sensory *mirroring* of phenomena is required. Discovery of a law of reality implies "short-circuitry" of the sensory mirror of events, whereby the respective law is made manifest. Ideas are inventions, but through them man discovers reality itself. Otherwise, it would be ununderstandable that this world is yet understandable, that we can accurately foresee when and where a spaceship will land on the Moon.

Reproaching Marx and Engels for their having resorted to the "animistic projection", to transfering the dialectics in thinking to reality, Jacques Monod thinks it is "impossible to interpret otherwise the famous "inversion" whereby Marx substitutes dialectical materialism for Hegel's idealistic materialism" (p. 46).

I find it difficult to understand why the theory according to which the dialectics of ideas reflects the dialectics of things is "animistic", while the theory stating that logic ensues from generalizing experience is "scientific". Experience does not prevent, it mediates the transition from reality to logic. Or else the match between logic and experience would be equally miraculous. Any Marxist agrees with Jacques Monod that with living beings everything is derived from experience... But not from the present experience, renewed by every individual, every generation, but from the one accumulated by the species throughout "its evolution" (p. 169). The logical structure of thinking mirrors the universal relations among things since it concentrates the experience of countless human generations. That explains why "by systematically confronting logic with experience, according to the scientific method, we actually confront the whole experience of our ancestors with present experience". (p. 172). That explains why the

[6] *Ibid.*, p. 49.

logical forms of thinking have remained the same for thousand of years, while their cognitive substance has been considerably expanded and it is further developing, changing, reverting...

7. FANTASY IN SCIENCE

Man is the only being in the universe whose resourcefulness made him use certain phenomena in order to change and signify other phenomena. It is in that way that the tool and the speech appeared. Unlike all other beings, man is not content with adaptation to phenomena, he strives to change them. But revolt against phenomena implies observance of their laws. One cannot control phenomena in practice if one does not observe their essence in theory. That is how man's steppping beyond phenomena started, towards ever deeper essences, beyond effects towards ever more deeper causes, beyond the present towards an ever more distant future.

By successfully keeping phenomena at an increasing distance with the help of the tool and the speech, people came to discover the essence and construe new phenomena of the same essence. In that way they succeeded in making a boat from a floating tree, a silex knife from an unchopped stone, a wheel from a tumbling tree, a steam engine from a boiling water pot, penicillin from mould, airoplanes from the birds' flight, and so on, up to the spaceships nowadays...

Genuine fantasy does not mean divagation, but an act of knowledge. It is at the same time discovery and invention: discovery of some essential properties and invention of a new phenomenon endowed with these essential properties. Discovery is made possible by the *unity* between nature and man, whereas invention is made possible by the opposition of man to nature. The unity between man and nature is contradictory, dialectical, dynamic. Man is not content with the phenomena nature offers him, consequently he adds the products of culture to it.

Without fantasy, men would not have succeeded in transcending the sensitive reflection of phenomena through rational reflection of essences, hence he would have been given no chance to steadily cover the path from phenomenon to essence and from essence to phenomenon. Fantasy alone accounts for a "creativity field" between man's sensitivity and reason, breeding constantly novel ideas. "For," Lenin noted, "even in the simplest generalization, in the most elementary general idea ("table" in general) there *is* a little bit of fantasy. Conversely, it is absurd to negate the role of fantasy even in the most rigorous science... (*Philosophical Notebooks*, p. 300).

Fantasy made people build the means of production and of communication, whereas improvements in the means of production and of communi-

cation continuously developed their fantasy. While sparrows build their nests like they did 10,000 years ago, mankind has gone from hut to sky-scrapers...

Before making a building from certain materials man elaborates it in his mind, from ideas. Only in the human mind can fantasy make, unmake, and remake the plans of future achievements. The remoter the essences, causes or aims, the richer the fantasy should be, hence, the larger the "creativity field" between sensitivity and intellect that fantasy is allowed to play in.

Science implies fantasy, while fantasy implies critical spirit, originality and boldness. He has *critical spirit*, who is surprised by things that are no wonder to the others; he is *original* who has understood what others have failed to understand; he is *bold* who fights the dogmas to make room for the new truths.

But fantasy that has led to humanizing nature is now called to prevent dehumanizing of culture. There is the danger that the amazing development rate of technology should change our planet to an environment unfavorable to human life. It is fantasy again that will help us prevent the "pollution" of nature and culture, once more raising man above his creation.

8. SCIENCE AND ART

Few are contesting today the idea that there are essential similarities between science and art. Science cannot advance without fantasy, and art cannot develop without knowledge. There is fiction in a scientific hypothesis and truth in a work of art. Invention and discovery exist in both science and art.

Equally essential, however, are the dissimilarities between scientific and artistic creation. Through science, the determinism of the world is imposed upon man, through art, man's freedom is imposed upon the world. Through science, man accepts a certain humiliation to the world, through art he shows his boldness towards that world. In science the object is important, in art it is the subject. Unlike science, art is no "description" of the object, but "transcription" of the attitude of the subject to the object. The scholar *investigates* the object, the artist *uses* it in order to *express* himself. To acquire artistic expression, the needs of an epoch should become the aspirations of an artist. By expressing himself, the artist speaks for his whole epoch. Science directs people's attention outside them, whereas art focuses attention on themselves. Science tends to reduce man's life to his intellectual activity, art tends to re-set the dynamics equilibrium between living and thinking, subject and object, means and aims.

Scientism endangers man's integrity and threatens to be conducive to a society where man would become lost among the things he himself has created.

The justifiable concern to increase the objectivity of knowledge made people wage an endless war against their affective lives. The less stirred by the aversions and aspirations of the knowledgeable subject, the more objective knowledge is. But carried away by the scientific exploration of the outer world, man is at a given moment threatened with alienation from himself, from his values and ideals. The means devised begin to reify, assume autonomy, alienate, get out of man's moral control. Finally, man would face a culture — ever more technical, more functional, more utilitarian in character—, capable of developing independently and even contrarily to human ideals. Man's halving naturally conduces to a halved world. A man who has lost his soul can create but a soulless world. From a means of controlling nature, science, left alone, severed from affective life, becomes a means for man's subjugation. Science itself stagnates unless it is stirred up by emotions, feelings and passions.

At a like historical moment, the role of art is considerably increased. Through art, man's wholeness is restored, his sensitivity, threatened by the hypertrophy of the intellect, is reactivated. Through art man becomes *disalienated*, resuming his control of the surrounding world. Through art, man meets his self again and places himself ahead of all values.

I do not know if a pan placed on a pedestal will remain in art history, but art history will long recall this gesture that has singled out from the anonymity of every-day use a human creation and made it again the subject of disinterested contemplation. Concrete art will not remove all abstraction, only the outdated one. The lack of logic of some contemporary works mirrors the authors' highly logical hostility to the intellectualistic unilateralization of man today. The significant is absurd, but signification is logical. Sometimes the absurdity of the significant adds to the expressivity of signification. Man*kind* and *kind*ness advance through the self-dynamism of the contradictory unity between use and contemplation, between sensitivity and reason, between science and art. Without reason, the anthropoid would not have risen to culture, but with reason alone, man would fall outside culture.

9. THE FIGURE "2"

9, 7, 5, 3, 1 had been for millenia the most revered fatidic figures. The *nine* Muses of the Greek art, the *seven* arms of the Judaic chandelier, the *fifth* Medieval essence or quintessence, the Christian Holy *Trinity* or Hegelian *triad*, the *one* of the various monisms...

In "The Chinese Book of Permutations", written some 1,100 years before our era, the odd numbers are masculine and superior, the even ones are feminine and inferior. Most often odd numbers were considered good-fated while even numbers — ill-fated.

What can explain the high esteem that has been paid to "odd" numbers? The answer seems to be: *social inequality*. People can apprehend the relations among things only through relations among people. Before coming to reflect the world, thinking is moulded in speech, hence it must penetrate social relations.

In the primitive commune, before social equality had frayed out, the main number was 2, and people were numbered by multiplying 2. Number 1 appeared later thus enabling the formation of number 3, and so on. Paul Lafargue underlines that "extending counting beyond number 2 was one of the biggest Herculean efforts assumed by the human mind". The remnants of those times have been preserved up to these days. In the language spoken by the Pitta-Pitta tribe, Queensland, figure 5 is rendered by "pâkoula — ng — ouro" where pâkoula means *2*, ouro — *1*, and ng has an euphoric function. The even numbers still retain a certain superiority.

Finally, social inequality made odd numbers rise to a leading position. The master's, king's, emperor's power necessarily implies the existence of an "unparallelled" being. The seventh day of the week is superior to the other six, the fifth essence is superior to the other four, synthesis is superior to thesis and antithesis, existence is superior to essence in the existentialist doctrine, and so on.

Whenever a certain social equality is reestablished, figure 2 tends to regain its leading position. Dialogue, dialectics, binary theories are again prevalent. But the more social equality is restricted to the rulers' class, the more unequal the dialogue, the more unequal the two elements of dialectical unity.

In Aristotle's dialectics, essence is superior to phenomenon, and reason is superior to sensitivity since in a slave-owning society the thinking master is superior to the working slave. Between the masters' pure spirit and the slaves' painful toil no dialogue proceeding on an equal footing is possible. In "Plato's heaven" the essences are not polluted by phenomena, as they are on earth. In the duality matter-spirit, sensitivity-reason, thinking-work, matter, sensitivity and work have embodied the curse for millenia on end.

Extension of social equality to an ever larger number of people naturally leads to an increasingly authentically dialectical outlook on the world. In dialectical materialism, the primordial character of matter, sensitivity and practice does not reduce spirit, reason and theory to *secondary* but only *second*, determined elements, which are no less important.

The binary character of mathematics, linguistics and anthropology today is not unconnected to the contemporary development of democracy. Even though democracy, too, cannot operate without observing the majority, half plus one, still, the democratic dialogue facilitates understanding of the other point of view and the other aspect of things.

Neuro-physiology has discovered "the second system of signalization", linguistics has discovered "the second speech articulation", anthropology has discovered "the second work tool"...

It seems as if the "fatidic" figure of the 20th century were "2".

10. BIVALENCE

Value is a property that things acquire in contact with people: the property to facilitate or to hinder man's development. Thus value is a *human* property of things, a property that the object acquires from the subject. Sounds being uttered become true or false sentences, stones being handled are turned useful or harmful, caves become beautiful or ugly, deeds become good or bad...

Nature as such has no value. Nature is neither true, nor false; neither good, nor bad; neither beautiful, nor ugly; neither just or unjust. The value is a human creation. The history of value goes back to the first being capable of using a thing found in nature in order to accomplish an intention added to it. By devising the tool and the speech, people have succeeded in overstepping their adaptation to the environmental tendencies and in starting adaptation of the environment to their intentions. The other beings live by nature. They have only attractions or repulsions. Only men are capable of opposing nature. That is why they alone have aspirations and aversions.

Nature cannot be absurd. Only people's intentions and actions may be absurd.

A thing goes deeper into the sphere of values when the effect it has on man's development is stronger. Things that are detrimental to man have a negative value; those serving him have a positive value. By their very essence, values can be but *bivalent*. In the absence of man, nature is nonvalent. Man is bivalent since he is the only being in which determinism is changed to freedom of action for or against humanity. Man is his own friend or enemy. Nature is neither hostile, nor benevolent to him. It is indifferent. Nature has the value assigned to it by man. Unlike what happened at the beginning of history, nowadays the wealth of a country lies more in the creative power of people than in the generosity of nature.

It has frequently been asserted that value is a man-nature *relation*. True, value is born of and manifests itself in man's relation to nature, but once born it becomes the property of things made by man. Value is not reducible

to the relation where it was born of and through which it manifests itself, it is a property of human creations.

That value is a human property of *some things*, and not a relation *between* things and people, is also proved by its tendency towards autonomy, alienation and transformation from positive into negative. Invention of robots taking over the inhuman work of man is, obviously, a positive value but the trend in our electronic civilization to change the entire mankind into a robot society, sure, is negative. In the history of thinking, the works of Medieval nominalists had a positive value since they were aimed against Scholastics acting as a brake in man's development; however, the works of contemporary nominalists have a negative value since they prevent formation of an ideal commensurate with our epoch. Television has, undoubtedly, a positive value, but its tendency to discard the book, reading, meditation is negative.

Only the protest of the hopeless promotes negative values: the crime, the lie, the absurd. Men have an inexhaustible capacity to keep their creations under their moral control, expanding them, correcting them, and abandoning them if necessary. A society is superior to another to the extent to which it has the power to self-regulate itself with smaller material and spiritual efforts.

If referred to man's development, which is the *supreme goal*, all the values are *means*, and they should remain so. When a means no longer serves man, it is the means, not the man, that must be sacrified.

11. THE CRISIS OF THE AIM

The tremendous development of the means of production and communication in the overindustrial contemporary society, and the collapse of the various dogmas of our century have resulted in the amplification of external life at the expense of inner life, in the hypertrophy of social determinism at the expense of individual freedom and personal responsibility, in a growing distrust in man's spiritual force. Governed by profit, production turns from a means subordinated to man into an aim subordinating man. Paradoxically, the "consumption" society is actually a "production" society where consumption is increasingly being ruled by production for production. Consumption is required by production, not production by consumption. Consumption needs are controlled by production interests through the agency of numberless media. A bureaucracy and technocracy is being formed by virtue of some social laws, ever more occult and alien to man's aspirations. Turning into its own aim, production gets out of man's moral control, and man's most human characteristics — individuality, subjectivity and freedom — are mortally menaced. In the past, the appear-

ance of "ego" led to humanism; today, disappearance of "ego" would lead to anti-humanism. When humanism can become scientific, anti-humanism will appear "scientific". It is precisely the means that can spare man every effort other than the effort creative of aims that threaten to subjugate him. Being increasingly consumer rather than producer, man is left no other choice but between creation and disappearance. Human creation is the only form of negentropy that can successfully oppose nature's growing entropy. Contemporary antihumanism is the theology eternizing this critical moment in man's history.

We are ever more frequently being told that it is not the people that act in a particular society, but that a particular society acts through people, that it is not the people who speak a particular language, but that a particular language is spoken by people, that it is not the people who think a particular system of ideas, but a particular system of ideas thinks through people.

We are strongly invited to give up the illusion that the human self would enjoy a certain amount of freedom to sound the future with the help of hypotheses, to anticipate it with the help of projects, to render it into the present with the help of tools. We are being argued on thousands of pages that the future is a myth, fed by our desires, that freedom is a delusion, fostered by ignoring necessity, that the self is the philosophers' invention. Believing that nature will efface culture much the same as the sea wipes off the figures in the sand along its shores, antihumanism forbids the future to further rob our present, allowing us to throw ourselves into an enthusiasm deprived of tomorrow... The natural battle against any dogmatizing ideology is extended intolerably into a dogmatic battle against all ideologies. Antidogmatism becomes anti-ideological dogmatism, turns into antihumanist dogmatism.

After so much disappointment, no wonder that contemporary scholars strive to add to the accuracy of our knowledge also by decreasing the subjective involvement in the process of knowledge.

A sentence concerning a system of relations among objects is more objective than a sentence concerning an object-subject relation. The sentence "the earth moves round the sun" is more objective than the sentence "the sun rises".

Since man cannot rule nature *practically*, and if he does not submit to it *theoretically*, then nature itself, such as it is, must necessarily be known. But no sooner has nature been known than it must be brought under man's control. Man is the only being capable to set aims to himself and to set himself as ultimate goal.

Scientific accuracy does not require man's removal from the process of knowledge, but only the provisional suspension of his affective states, of his likes and dislikes, that might affect the course of reflection.

It is only humanly that man can apprehend what exists independently of man. Truths are knowledge of adequately mirrored reality. But knowledge exists only in, through, and for man. Man is he who knows, and still he is the one to benefit from all knowledge.

However, antihumanism refuses to turn to man's aspirations, and to reinstate the necessary unity between science and humanism. Science is not necessarily humanistic, and humanism is not necessarily scientific, but by adding science to man's aims, science becomes humanistic and humanism becomes scientific. By placing the natural and societal sciences at the service of human aspirations, Marxist philosophy, assimilated by people, becomes a huge changing force. Dehumanized, science makes the creative opposition between man and nature become void, throwing him back in nature's anonymity.

But then the history of mankind is, in the last analysis, the history of disintegrating anonymity. Creator of the tool and the speech, man is the only being capable of removing from anonymity an ever larger part of nature to ultimately come, himself, out of anonymity, too. Any other being is an individual of a species; only man, by developing his individuality, may become *unique*.

J.-J. Rousseau considered that the individual is born good, but society is bad since it perverts him. As a matter of fact, society is good since there is no other means whereby man can become an individuality. It is society alone that can generate self-knowledgeability, hence, constitution of egos.

The issue from anonymity is possible in and through society alone. Only society can enhance the possibility that every separate individual has for formation and manifestation. Fame is nothing else than the "premium sanction" that society bestows on those having expanded their material or spiritual power on it. The greater the share in the development of society, the greater the fame, and similarly the greater the crime against society, the greater the antifame. Negative fame, however, is a "penal sanction" whereby societal ethics denounces its criminals. True fame is gained by originality, but originality is an act of knowledge, not an extravagance.

For thousands of years, the possibility of some to become themselves was paid by the anonymity of all the rest. However, socialism by democratizing the possibilities for individualization may allow an ever larger number of people to become themselves, hence to extend the freedom of issuing from anonymity, and, thus, ensure formation of a rising number of creative personalities.

Man's superiority over nature is seriously menaced by contemporary antihumanism.

That is why man's rehabilitation is the most urgent task of our days. Man's *humanity* lies not in his *natural* capability of adaptation to the

environment, but in his *cultural* capability to change it, imparting human meanings to it... Man is being formed by society where he manifests himself in, but his liberty of creation is not annulled by society, on the contrary, it is made possible. Antihumanists claim that humanism collapsed with the overthrow of geocentrism by heliocentrism. But humanism is not rooted in man's central position in our solar system, but in his power to extend control over the environment. Heliocentrism, not anthropocentrism, has removed geocentrism. The future society by freeing man of his inhuman works, and thus increasing the distance between social determinism and personal freedom, will be able to further strengthen man's central position in the universe. Man must resume control of the tremendous means he has devised. Man is man's ultimate goal and he must remain so. All his creations are means. From now on, man must prevent sanctification of means, hence, sacrificing the aim. When the means no longer serve man, the means is altered, man is not abandoned. Liberation of everybody is *the means: the aim* is everybody's happiness in the act of creation.

12. PHILOSOPHY AND POLITICS

From the disintegration of the primitive commune to the construction of world communism, any philosophic system, inevitably, has also had a political significance.

The dialectics of the world governs the dialectics of man and his knowledge of the world. The *real* contradictory unity between phenomenon and essence governs the *human* contradictory unity between the sensory and the intellectual. Thus man is both affectivity and reason, nature and culture, matter and spirit.

But the dialectical equilibrium between the two contradictory dimensions is always unstable. Man has the monist tendency to press at times on one or other dimension. Monism, by the stability and eternity it claims, is more convenient than the self-dynamism of dialectics. Dialectical thinking resembles bicycle riding: every stop is followed by falling on one of the two metaphysics awaiting on either side of the road.

That is why the history of philosophy is a sustained battle between the two unilateral views on the object of knowledge and knowledge of the object: phenomenalism and essentialism, empiricism and rationalism, life for life's sake and intellectualism, skepticism and dogmatism. The dialectics of philosophy ensues from the battle of opposite metaphysics. The pace of the history of philosophy is governed by the metaphysical oscillation of dialectical thinking. But eversince the emergence of classes and of the social struggles to gain over and retain state power, metaphysics is political:

plebeian phenomenalism against patrician essentialism, bourgeois empiricism against feudal rationalism, petty-bourgeois life for life's sake against technocratic scientism, revolutionary skepticism against conservative dogmatism, and so on. When the privileged canonize the essences, the oppressed draw attention to phenomena, when the means tend to be substituted for aims, essentialism and rationalism re-appear; phenomenology against positivism, and anthropocentism against technologism.

The inference is that philosophy is the highest form of feedback whereby a certain society self-regulates. A society unilateratizing man and his creations is in danger. Philosophy steadily fights to restore man to his wholeness.

Being a conception of utmost generality on the world and on man's role in this world, philosophy cannot be validated or invalidated by each and every fact. One particular fact may at most invalidate a scientific hypothesis. A philosophic outlook can only be validated or invalidated by the general trend in the history of mankind. One philosophy is truer than another to the extent to which it succeeds to better re-establish the balance between man's contradictory dimensions.

For that reason, philosophy is primarily a critical *approach* to thinking. It must offset the tendency to unidimensionality of dominant metaphysics. However, the critical spirit of philosophy does not derive from the philosopher's à priori spirit of contradiction, but from the fact that he is deeply outraged by the unidimensionality he refutes. By its rationality, philosophy is, no doubt, a scientific discipline meant to explain the world, but by its militantism, it also shows a political stand whereby society self-regulates, improves itself, advances. As it is the most general expression of an historic moment, philosophy can only be "conjectural", but, unlike opportunism, it is *critical*, not *apologetical*.

In the conditions of class struggle not even dialectical materialism could avoid a certain oscillation between opposite metaphysics. Having to fight idealism, subjectivism and liberalism, it was compelled to insist upon the materiality of the world, upon the objectivity of knowledge, upon man's social character and upon universal determinism. Today however, when the tremendous development of the means of production and communication hypertrophies man's external life at the expense of his inner one, and the object tends to absorb the subject, threatening the individuals' liberty of creation, materialist dialecticians are compelled to insist on the role of ideals, creative personalities, subjective aversions and aspirations in the development of society.

A society without philosophy would be conducive to a society without people; a "society" where technique got out of control from human ideals would become dehumanized, eventually dehumanizing the entire society,

reducing mankind to one of the numberless organizational systems in nature.

Through the development of the sciences, philosophy does not become useless. On the contrary, through science, which strives to reduce, to minimize the subject's share in getting knowledge of the object, man experiences a certain humiliation to the world, but, through philosophy that mediates precisely on the subject's liberty to the object, man manifests his utmost boldness to the world. Through science the object imposes itself on the subject, through philosophy it is the subject that imposes itself on the object.

To re-establish the equilibrium between man's sensitivity and reason, to keep all man's creations in the service of man, to prepare a society able to ensure an ever greater creative liberty to each and every man — that's the political task of Marxist philosophy today.

The question remains, if in the communist society metaphysical tendencies towards unidimensionality will continue to exist. Probably yes.

But with classes, class-struggle and, hence, politics no longer extant, the metaphysical tendencies will no longer be able to establish themselves as prevalent ideologies, and will be more easily opposed by the dialectical consciousness of an ever more unitary and more differentiated society. The extent of affluence and leisure will equally permit living and thinking, favoring maintenance of the dialectical equilibrium between the contradictory dimensions of man and of his creations.

II. LINGUISTIC COMMUNICATION AND GENESIS OF IDEAS

Ideas originate and develop in and by communication. Forced to communicate among themselves by collaboration in their struggle with nature, people started elaborating ideas. The word is the body of the idea and the idea is the soul of the word. Language, the main means of communication, is, like everything created by man, both matter and spirit.

As already known, Marxist philosophy considers that spirit is generated by matter, that it is a function of highly organized matter and a product of socio-historical practice. The contemporary theory of communication substantiates this thesis, specifying the process whereby matter and social practice give birth to spirit: matter generating spirit is *speech*, which helps people understand one another and thus organizes their common action upon the environment. Speech is both matter — sound — and social practice — means of communication. It is not the brain, but man that thinks with the help of the brain ever since he has started thinking.

Spirit is the creation of speech. Through speech man adds a logosphere to the biosphere.

1. SPIRIT

Spirit has begun to emerge the moment the anthropoid started articulating *similar* sounds to designate the *similarities* between things. The development of spirit is governed by the added metaphoric force of speech, which may provide transition from the names of common properties to the discovery of general, even universal, properties. Spirit develops alongside with speech improvements that extend the distance between the perceptible tendencies of the object and the intelligible aims of the subject. Through ideas that are being crystallized, conserved, and developed in and through speech, people transcend the natural zone of perceptions and build the spiritual world of concepts. Spirit is the activity proceeding in the minds of the people after speech has made feelings change to notions. Spirit originates in people's linguistic activity. Prior to speech only intelligence could exist. The intellect, through which perceptions crystallize out into notions, emerges and develops with the help of speech. Through speech, the anthropoidal intelligence becomes a human intellect, and the cries signalizing concrete conditions become words conveying ever more

abstract ideas. Affectivity as such is not inherent to spiritual life. It permeates the activity of the spirit only as ideas, through the stylistic constructions of language, accompanying the intellectual dimensions of ideas. Two words that convey the same notion differ from each other not only phonetically, but semantically as well, since they derive from two different metaphors. They communicate the same knowledge, but do not show the same attitude to the known thing. Never can two words be perfectly synonymous, since they show different attitudes to the same thing. Head and pate have not the same meaning, even though involving the same notion.

Affectivity and intelligence is what other beings have got too; but only man has intellect, since he alone has succeeded in speaking. Man alone has spirit; the other beings can only have soul. What distinguishes man from all other beings is his spiritual activity. Through intelligence animals get adjusted to various environments, through the intellect people have their experience conceptualized, thus departing from the environment, while acquiring the possibility of changing it according to some human uses.

But spiritual activity is not reducible to an intellectual approach. It is extended into thought, reason, knowledge and consciousness. Thinking is the ability of spirit to pass from one idea to another, to combine ideas among themselves, to derive new ideas from old ones. The intellect provides ideas, while thinking processes them. Accuracy of thinking is watched over by reason. Reason sees to the logical sequence of ideas. Being capable to pass from one idea to another without incessantly resorting to experience, thinking may go astray any moment unless it is rational. To be rational means to observe the forms and the logical laws of thinking. Or, since the logical forms mirror the universal properties of things, and the logical laws mirror the universal relations among things, to be rational is to start being accomplished. To be rational is to observe at least what is universal in reality.

But to reach truth, accuracy of thinking is only a necessary, but insufficient condition. To efficiently influence the course of action, people should know not only the universal, but the particular as well. Knowledge is the approach whereby thinking is adjusted to things, facing reality. Finally, consciousness is reached by focusing knowledge back onto itself. Man is the only being capable of knowing not only that he does *not* know, but that he *knows*, too. It is through consciousness that he maintains control not only of the object, but of the subject-to-object relation as well.

Spirit is that activity which makes man capable of adding to sensory *information* some *surplus-information* created by intellect, thinking, reason and consciousness. A concept contains much more information on reality

than perception. Through his spiritual activity man proceeds to increasingly lower wasted energy in nature, in society and in his private life.

Spirit is second, derived, not secondary, inferior to matter. However, the spirit cannot outlive a body as long as its own body resists: first oral speech, then written, too.

2. WRITING

Graphic representation has been since its very beginning the *transcription* of human unrest concerning the future rather than the *description* of the present. Being indicatable, the present does not require re-presentation. Any representation, recalling the future and anticipating the future removes the object concerned from the present. Being transcription of speech, graphic representation already partakes of the property of notions, to have one side facing the past and the other facing the future. By retaining the memory of past experience to facilitate anticipation of some future action, graphic representations reflect to a far greater extent the people's attitude to nature than the picture of nature itself. Through graphic representations, people do not exchange information on the present, which can be seen, but on the absent, which cannot. Graphic representations use the present to denote the absent. Writing conveys information to denote the absent, in the absence of both emitter and receiver.

Through the graphic representation of speech, man's relative independence to his environment is increased considerably. "To write" is to outdistance the present, to disregard countless concrete properties of the real, and consequently to prepare human rule over sensitive nature. Animals cannot be severed from the present since their means of communication are natural, and they can only signalize a future unmediatedly related to the present. "With most social insects and mammals, social relations are built on a language of smells. Most problems of interest to the group are controlled by a chemical language."[1] The integuments of a frightened or wounded fish yield a smelling matter perceived by the chemo-receivers of its fellow-creatures, which are panic-stricken. Communication through smells is doubtless more precise and constraining, but being unmediately tied to the present, it allows the animals no initiative to their environment. "Few human decrees have the faultless effectiveness of the substances released by the mandibular glands of the bee-queen. The smell of this keto—9—decen—2—transoic is an unbreakable law, producing the workers' caste, by inhibiting in these bees the full development of their ovaries."[2]

[1] Lorand Gaspar, *Approche de la parole*, in N.R.F., Juillet, 1972, p. 41.
[2] *Ibid.*

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The decisive superiority of human language to all other non-linguistic means of communication consists in that speech in general, and writing in particular can maintain the present at an ever longer distance thus enabling it to foresee the future, the possible, the probable. Man has devised language, not to stay in the wake of things, but to change them according to his aims. Graphism is not so much reality but rather man's intentions on it. "If there is one thing we are positively certain of, it is that graphism starts not with the naïve representation of the real but with the abstract."[3] The history of writing, from pictographic mythograms to the letters of the alphabet is the history of graphic representation of ever more abstract and more general ideas of reality. The earliest drawings are rather graphic backgrounds for an oral context than reproductions of some hunting scenes. The earliest figures had magic value, they encoded a secret message that only those initiated could decode. The transition from mythic-magical thinking to the technical-scientific one was gradual, concomitantly with the evolution of human settlements. "It is towards 3500 B.C. (2500 years after the first villages had appeared) that the first Mesopotamian germs of writing can be traced back. Two thousand years later, about 1500 B.C., the first consonantal alphabetic appeared in Phoenicia, and about 750 B.C. the vocalic alphabets developed in Greece. By 350 B.C. Greek philosophy was flourishing."[4] Improvement in writing leads not only to the improved graphic representation of speech, but it also causes considerable progress in thinking. Which means that while making the exercise of thinking accessible to an ever larger number of people, it also induces qualitative progress in thinking; the more universal its character, the more capable to reflect the universal thinking is. Turned impersonal, uniform and reversible, printed alphabetic writing promotes abstract thinking and elaboration of theoretical explications. Ideographic writing, still recalling the concrete image of the things it designates, maintains thinking in the neighborhood of sensitivity and acts as a brake upon its capability for abstraction. The letters of the alphabet, by transcribing the "sounds" of speech, and not their "meanings", opened unlimited prospects to thinking. An infinite number of statements can be written with a finite number of letters. Through passage from mono-articulate ideographic writing— ideogramatic statements — to double articulate alphabetic writing — monomic then graphemic syntagms — creativity of thinking has increased considerably. As a matter of fact writing requires a much greater mental effort than speech. Everybody can speak, but not everybody can write. Writing is more difficult to learn. Writing is no added function to the hand, as speech is to the vocal cords. "To speak, the speaker only needs his body; to write, the

[3] André Leroi-Gourhan, *Le geste et la parole*, vol. I, Albin Michel, 1964, p. 263.
[4] *Ibid.*, p. 291.

hand does not suffice, he also needs a particular tool: stylet, feather, pencil, typewriter, etc. Even that is not enough: not only does one write with something, but also on something: stone or brick, parchment or papyrus, mostly paper today."[5]

Alphabetic writing, though simpler, is much more difficult than ideographic writing, since it requires a much greater abstracting effort. The reader of an alphabetic text has to mentally cover a greater distance between the graphic significant and the signified meaning than the reader of an ideographic text. By bringing the ideograms "man" and "mountain" close to each other, a graphic significant results nearer to the meaning of "hermit" than the word "hermit". That the alphabetic writing is a painstaking and late acquisition of human genius is also proved by the fact that at a certain stage of his illness the aphasic goes back from alphabetic writing to ideographic writing... After characterizing the basic changes in the aphasic through alteration of the categorial attitude and, hence, regression to a human stage closer to nature, Adhemar Gelb notes: "Thus, an aphasic called B, a gas lamp, M, a carnival cap, and S, a spider...". The diseased was no longer able to realize the identity of letters, but only to perceive the similarity between certain "ideograms" and concrete things.

However, alphabetic writing is not only huge progress in thinking, but a serious danger, too: *the unilateral development of reason at the expense of sensitivity.*

At a turning point of history, between Socrates still defending oral culture and Aristotle promoting the culture of writing, Plato was already aware of that danger. "Writing, Phaedrus, has a serious disadvantage, like painting. The products of painting are as if they were alive but ask them a question and they will remain silent. The same for written discourses. One might think they can speak like intelligent persons but ask them to explain what they are saying, they will only give one answer, always the same. Once written, the discourse travels everywhere and passes indifferently through the hands of the experts and of the layman, unable to distinguish between those it should speak to and those it should not. If wrongly despised or cursed upon, it always needs its father's help; for it is incapable to fight back an attack and to defend itself."[6] Plato lists here almost every shortcoming of a text: impersonality, invariability, generality, tendency to alienation. It is a current finding that the authority of a discourse increases concomitantly with its passing from utterance to manuscript, to a typed text and, finally, onto the printed page.

Two thousand years later, on the eve of the French Revolution, at a moment when the graphic representative was sanctified, and the human

[5] Etienne Gilson, *Linguistique et philosophie*, Paris, Vrin, 1969, p. 206.

[6] Plato, Phaedrus, 275, d–c.

representative sacrificed, Rousseau resumed the criticism of writing with further fierceness. Considering that writing is dead letter and that it stifless life, Rousseau explains: "In writing, you are forced to take all the words in their common acceptation; but the speaker makes acceptations vary through voice, determines them as it pleases him; less constrained to be clear, he adds force; and it is impossible for a written language to preserve for a long time the liveliness of that which is only spoken". The utmost wrong would be a logical-mathematical language, that is a language that can no longer be spoken, but only written. People have already started asking more frequently how a word is written than how it is pronounced, as if writing and not speech, were of primary importance.

Unlike Plato and Rousseau, the contemporary opponents of writing do not only oppose speech to it, but also the audio-visual means of communication on the whole. By reproaching the alphabetism that has uniformized, fragmented and sequentialized the world, thus generating rationalism, nationalism and individualism, Marshall McLuhan writes: "Obviously, rational has long meant in the West uniform, continuous and sequential. In other words, we have mistaken reason for alphabetism, which is reasonable for a particular technology"[7]. McLuhan hopes that soon the culture of writing and reading, stimulating particularly intellectual activity, will be substituted for an oral-visual culture that should educate sensitivity. In the future, education will be concerned more with the development and shaping of feelings and perceptions rather than with *filling the heads*. "And that will undoubtedly be no loss for the intellect."[8]

However, sensitivity no longer guided by intellect ceases to be human sensitivity. Man's full development is reached not by the diminution of his abstracting power, but by its being balanced up by an ever stronger affective life. The intellect "cools" off sensitivity only if unilaterally cultivated. It thus expands it, extends it, refines it.

The interrelationship of the logical force of alphabetic writing and the affective authenticity of oral language should be cultivated. Writing enhances the logical coherence of speech, while speech imparts life to writing. Alphabetic writing disciplines thinking and contributes to changing the social dialogue to individual monologue. Illiterates monologize far less than literates. A lecture is spoken writing rather than speech. By spatializing speech temporality, writing changes irreversible thinking to logical reversibility. An outstanding part in the writing-to-speech interrelationship is played by handwriting, closer to speech individuality than print. Ivan Bunin confessed to Valentin Kataev that handwriting is more intimately related to the act of creation than typing. "When you yourself are typing

[7] Marshall McLuhan, *Pour comprendre les média*, Montréal, 1968, p. 32.
[8] *Ibid.* p. 52.

— he said — every word you type loses its individuality, it gets depersonalized, whereas the word written by your own hand on paper is like a material visible trace of your thinking, its outline; it has not lost its intimate relationship with your soul, with your entire self, if you wish, so that if that word is false or misplaced, inadequate or tactless, you would not only feel it instantly intuitively, but you would also see it with your own eyes, discerning a particular slowdown, speed up or even change in writing". Graphology is not applied to printed texts, only to manuscripts, to autographs... An investigation of the differences in the style of the writers typing directly their works and their handwriting would be of interest. It seems that the former is more "denotative" whereas the latter more "connotative", one is more cognitive, the other more expressive. The farther away it gets from speech, writing also gets away from thinking to ultimately retain only the logical dimension of thinking. However, in the legitimate effort to offset logo-centrism it should not be overlooked that the greatest conquests of human knowledge were only made possible by written, not oral, culture, that understanding of the role that audio-visual culture can and must play belongs to written, not oral culture.

Marshall McLuhan prefers ideography since, by its global character and synchronism, it appears to him more faithful to consciousness than the analyticity and sequentiality of alphabetic writing.

After claiming that "there is nothing linear or sequential either in the global field of awareness of every moment of consciousness"[9], McLuhan concludes, "Ever since the phonetic alphabet exists I have considered the inference relation as being *par excellence* the criterion of logic and of reason. Contrarily, Chinese writing imparts every ideogram a global intention of being and of reason, which only leaves a minor role to succession as a sign of mental activity and organization"[10].

Likewise, Roland Barthes is charmed by the anti-mechanical and anti-alphabetical synchronism of the Japanese culture. For a Japanese, the world is no "volume" to be explored, only a "surface" to be admired. The thinking of the Japanese is not concerned to go from the sensitive phenomenon to its intelligible essence, but with phenomena in general. To him "everything is an ornament of another ornament: first because at table, on the dish, food is always no more than a collection of pieces, none of which seems to enjoy the privilege of a certain ingestion sequence..."[11]

The European eats just as he writes: *discursively*. His menu has introduction, content, and conclusion. Contrarily, the meal of the Japanese is *configurative*. To him "to eat does not mean to observe a menu (a se-

[9] *Ibid.*, p. 106.
[10] *Ibid.*
[11] Roland Barthes, *L'empire des signes*, Skira, Genève, 1970, p. 33.

quence of dishes) but to detach by the slight touch of a stick, one or another color, due to some kind of inspiration..."[12]

It is true that the Japanese, unhampered by alphabetic thinking and the mechanical model have faster and more thoroughly assimilated the cybernetic pattern of culture, but one should not forget that the synthetism of the electronic age is the outcome of a long development of analytic and abstractive thinking. There is a qualitative difference between the synchrotism of pre-scientific thinking and the synthetism of scientific thinking. Synthesis implies analysis. The synthesis that contemporary consciousness achieves implies reversion of abstract analytic knowledge onto itself. Consciousness of the accomplished man is not reducible to knowledge of the environment, or to knowledge of oneself either, it is knowledge of the contradictory unity between subject and object.

3. NUMBER

The history of numbers is governed by the same laws as the history of names: it rises from the concrete to the abstract through the metaphoric energy of language, due to the contradiction between the need to *increase* communication and the need to *decrease* the effort of communication. "The primitive man" Al. Graur writes "had a very poor ability for abstraction, he was constanly faced with all kinds of superficial details, being unable to see the essential traits. That is why he could not group together several objects, every unit of every kind was seen separately, so that the problem of a plural was out of question."[13]

Numerals and the plural forms became possible only the moment thinking succeeded "to leave aside the unessential details and put together two or several individuals of a species interrelated among them by essential traits" (p. 7). As long as a different word exists for every Robinia subspecies, the phrase four Robinias cannot appear. The number is the result of human ability to ignore the quality of some objects to retain only their quantity. Human thinking has gradually risen from subspecies notions to universal ones, from the "dual" to the "infinite".

However, for a long time people have been unable to transcend the idea of "2". Not to this day do the aborigines of the Pitta-Pitta tribe, Queensland, have more than two numerals: ouro = 1 and pâkoula = 2. For 3 they use pâkoula-ng-ouro (ng being euphonic) while for 4 — they say pâkoula-pâkoula. People must have reached numeral "5", by counting the fingers of their hand. "In Sumerian, a language spoken in Asia Minor

[12] *Ibid.*, p. 35.

[13] Al. Graur, *Puțină... Aritmetică*, (A Little... Arithmetics), București, Editura Științifică, 1971, p. 6.

between millenia 4 and 2 B.C., 5 + 1 was used for 6, 5 + 2 was used instead of 7 and so on up to 9, thus marking off the important role played by number 5, viz., the number of the fingers of one hand." The Greek verb pempazomai, derived from pemp — "5" first meaning "to count on fingers" then "to count", seems to corroborate the correlation between the numeral "5" and the hand, too.

Figure writing starts with the tally. In Chinese, — stands for 1, = stands for 2, ≡ stands for 3; with Latins, 1 was I, 2 was denoted by II, 3 by III, 4 by IIII. Why did the Chinese denote figures by horizontal dashes and the Romans by vertical ones? That distinction, was it not due to the difference between the "relational" mentality of the ancient Chinese and the "substantialistic" mentality of the Romans, in turn governed by the difference between a prevailingly oral culture, mainly concerned with *relations* among phenomena, and a prevailingly written culture, mainly observant of the *unity* between phenomenon and essence? The horizontal line seems to convey the idea of thinking moving from one phenomenon to another, whereas the vertical one — the movement of thinking from the surface of phenomenon to the depth of the essence...

The contradiction between the need to increase the means of communication and the need to decrease the effort of communication made the Romans devise the sign V for five, and the Chinese the sign + for ten. "Henceforth counting is taken up again from the beginning, so that 6 is VI, i.e. 5 + 1, 7 is VII, i.e. 5 + 2 which obviously spares some effort, or else 7 must have been written IIIIIII. To the same effect, 4 has gradually come to be denoted by only two signs, IV, instead of IIII, and similarly 9 by IX, that is it was agreed that a lower figure written to the left of a higher one should be deduced from the latter, whereby an economy of signs was effected". For larger numbers the Latins had to take up the Greek system, while later the Arab system was adopted by almost the whole world. The number 388 was written CCCLXXXVIII, requiring 11 signs instead of 3. "Consequently, one can say — Al. Graur concludes — that number writing is the first germ of the universal language to be introduced not much later". But language, even when "universal" cannot have the accuracy of arithmetics, since it conveys not only general knowledge on reality that people share in common but also their particular and individual attitudes to it; language will never be only denotative, but "connotative" as well. It is not merely cognitive, but emotional, too. Unlike the "multiplication table", it has always a particular style.

Arithmetic is a semiotic system where the graphic significant does not stand for a phonic significant, it assumes intellectual signification directly. The arithmetical "language" has no graphemes, it has only symbols. It is deprived of the second articulation of speech. Consequently, it cannot

be enriched from within, but only through additions from without. On the other hand, the intellectual significations that arithmetic refers to reflect only quantitative relations. The number disqualifies, disindividualizes and, left alone, tends to dehumanize. But man is not reducible to knowledge, knowledge is not reducible to logic and logic is not reducible to mathematics.

Speaking of the magic numbers, Al. Graur notes the preference of the various languages for the numbers 3, 5, 7. "In all the tales, the emperor had three sons and three daughters, never two or four."[14] In India 5 is a magic number and in the Bible the capital sins are seven, the fat and the lean cows are seven, the book has seven seals, the chandelier — seven arms, etc. But then is it not social inequality that is responsible for the growing attention paid to odd numbers? Before coming to know the relations among things, thinking, born and developed in language, should be concerned with the relations among people. The master's, the emperor's, the despot's authority implies the unchallenged superiority of an "unparalleled" being. That is how the reverence to odd numbers might have started: the third son was better than the other two, the fifth essence — the quintessence — was superior to the previous four, the seventh day was holier than the other six. It seems that extension and deepening of democracy brings the 20th century closer to a binary outlook on the world, where figure 2 holds a prominent position... Finally people's thinking will become consistently dialectical.

4. ABSTRACTION

The number of those saying that an idea "is abstract" when they actually mean that it is "clumsy", "unilateral", "inoperative", or even "false" has increased lately. Thus, an unfair growing suspicion arises on the most human product of man: *abstraction.*

The tendency is somewhat older. The battle against the "abstract" emerges in the history of thinking whenever dogmatization of particular ideas begins to act as a brake on the progress of knowledge. Thus, all along centuries Chrysippus raised against Aristotle, Mediaeval nominalism against Scholastic realism, modern positivism against post-Kantian idealism. When certain abstractions become tyrannical, reversion to the concrete is required. Worship of certain abstractions causes revolt of the concrete. Adversity to dogmatized abstractions pushes nondialecticians to opposite metaphysics. The *movement* of things is accepted, but moving things are rejected; cognition is admitted, but knowledge is rejected; thinking is approved of, but thoughts are rejected; speech is opposed to words. To a like metaphysics abstracting is everything and abstraction

[14] Al. Graur, *op. cit.*

no longer means anything. According to Martin Heidegger, abstractions, thoughts, concepts, written words are but mere shelters that the "cowards" of thinking take refuge in. Musing nostalgically on the times when concepts did not prevent development of thinking yet and writing did not stop movement of knowledge, M. Heidegger writes: "He who sets down to write when thinking emerges necessarily resembles those taking shelter against the wind when it blows too strongly"[15]. To the metaphysics of absolute rest Heidegger opposes the metaphysics of absolute movement. But absolute movement of thinking is impossible without the relative stability of thoughts, for the movement of things is also impossible in the absence of moving things. The relative stability of thoughts mirrors the relative stability of things, and the movement of thinking reflects the movement of reality.

As early as 1934 confusion between "abstract" and "false" stirred up with indignation Mircea Florian, one of the prominent Romanian philosophers of the first half of this century. "It may be that by "abstract", he wrote, "the philosopher-citizen, without knowing it and even without wanting it — understands just 'false' and it seems to me that this is his unavowed thought. But it is much more convenient to say 'it's abstract' than 'it's false'. At any rate, falsity should be proved, whereas abstraction is so obvious that it is actually a waste of time for anybody to bother to prove it. Disapproval is enough."[16]

No doubt, there are false abstractions, but more important is that truths can be only abstract. A "concrete" truth is a logical system of abstractions multilaterally reflecting the real concrete. One truth is more concrete than another to the extent to which it reflects more essential traits of the investigated object. *Concrete truth* like *absolute truth*, can only be reached asymptotically *ad infinitum*. A more concrete truth on the real concrete will always be possible. Falseness of *some* abstractions is not conducive to refutation of any abstractions; on the contrary, it leads to elaboration of true abstractions. "Abstraction or analysis causes alienation from reality only if half-done or wrongly done; while, perfect, right abstraction gradually reveals the depths of the concrete. Abstraction is at the service of science and life and analysis, if carried to the last, reveal hidden synthetic forces. However, worship of the concrete reverts against its object as it is the case with any worship and dogmatism."[17]

Abstracting and its outcome — abstraction — played a decisive part in man's formation. Man's ability to "ignore" the individual qualities of

[15] M. Heidegger, *Qu'appelle-t-on penser?*, P.U.F., 1959, p. 91.

[16] Mircea Florian, *Reconstrucția filozofică* (The Philosophic Reconstruction), București, Casa Școalelor, 1944, pp. 303—304.

[17] *Ibid.*, p. 310.

things and to thus discover the general ones enabled him to overcome adaptation to nature and start building culture. The advancement of culture is based on man's capacity of outdistancing the variability of phenomena in order to get knowledge of the essence by means of concepts; culture is not possible without the capacity of abstracting. The most concrete art is "art" only to the extent it is already the expression of some abstraction. Even if we admit that a garbage bin displayed in a museum could be looked upon as art, it is already the expression of some abstraction; the object has been deprived of its household functionality and raised to a symbolic value. While the real concrete is a set of individual and general properties spontaneously concrete, abstraction is the refluence of some general properties derived of the perception of the concrete with the help of speech. Abstracting the general implies "inhibition" of the individual's sensitive mirroring. Abstracting means "unveiling, viz., removing the individual veil covering the general. Breeding concepts, the word sacrifices its metaphoric expressivity. Casting light on the general throws shade on the individual.

Mihai Ralea used to say that abstraction "implies isolation of one viewpoint alone and inhibition of the others."[18]

Man is the only being capable of changing the concrete, since he is the only being capable of forging abstractions, and the only one capable of abstractions, as he is the only being that has succeeded in devising language.

5. SPEECH AND LOGIC

People have always been more concerned with "what they speak" than with "how they do it".

They were primarily concerned with the idea of communication and its means; the code is less important than the message; people's attention is naturally caught by signification, not by the significant. An inevitable consequence of the fact that speech is the basic means of communication is also forgetting speech to the benefit of thinking. Men have considerably more mused on thinking, intellect, reason, knowledge and consciousness than on speech. They have been concerned with speech only at the critical moments of values.

The thinkers of critical epochs realized that demythization of outdated ideas is impossible without disclosing their lay origin. The illusion of the transcending or transcendent origin of ideas vanishes if one proves that

[18] Mihai Ralea, *Scrieri 1, Explicarea omului* (Writings, Explanation of Man), București, Editura Minerva, 1972, p. 82.

speech is not only the main means of communication, but also the main means of shaping thought. The origin of ideas is no longer mysterious the moment people realize that any idea is the outcome of their linguistic activity. Through speech man adds his own logosphere to the biosphere. But people only look at the significant when significations become critical.

The crisis of values in the slave-owning system induced the nominalistic reply of the Stoics against Platonism and Aristotelian logic. According to the Stoics, thought and word are one and the same thing seen from two angles. Logos, which is thought as long as it is kept within one's mind, turns into word when uttered externally. Logos is at the same time reason and discourse.

Francis Bacon came closer to the speech capability of generating ideas and opposed Mediaeval Scholasticism in the full crisis of feudal values. After showing that "*the idols of the forum*, those idols that have crept into the mind with the help of words and names are the most upsetting of all" [19], Fr. Bacon stresses: "For people think it is their reason that governs the words. But then the words revert and focus their strength upon the mind; that is why philosophy and sciences have turned false and useless. But the words, being usually shaped according to the ability of the populace, cut things along those lines that are most striking to the vulgar mind. And when a keener mind and a more careful observation would like to change those lines to make them agree to nature's actual divisions, the words run counter" [20].

Closest to truth, however, came Condillac, according to whom "any language is an analytic method, and any analytic method is a language". Departing from the theological outlook of the old order, Condillac concludes that "to create a science is but to create a language." However, more uptodate is his assertion that "language is innate, while the ideas are not."

The present-day crisis of bourgeois values has obviously led to an even more resolute aversion of interest from signification to significant. In its suspicion to any ideological signification, structuralist semiotics confines its scope of investigation to relations among significants. Thus, the world is reduced to a shallow surface and a present deprived of both past and future. The semiotic field that is being formed and developed between the verbal significant and its ever more abstract and general significations thus falls outside the scope of research. Structuralist semiotics only considers *differential* significations, without *referential* ones. But disregard of the semiotic field also means ignoring of the main *axiogenic* medium of culture. Values cannot emerge but within the spiritual tension of the semiotic

[19] Francis Bacon, *Noul Organon* (Novum Organum), București, Editura Academiei, 1957, p. 48.

[20] *Ibid.*, pp. 48–49.

field which is continuously fed by the metaphoric energy of speech steadily widening either knowledge of reality of the expressivity of the attitude towards it. Through structuralist semiotics objectivity turns into objectivism, relativity into relativism, science into scientism, and human individuality is being dissolved in social anonymity.

However, handled by a materialist-dialectician, semiotics can explain how lack of knowledge of the process whereby speech generates surplus information leads to spiritualism, much the same as unpayment of labor, generating surplus product, leads to capitalism. Capitalism speculates with the surplus product provided by labour, whereas idealism, whether transcending or transcendent speculates with the surplus information provided by speech. The correlation of labor to linguistic activity is by far more intimate than it is commonly assumed.

It was only natural that a conception should emerge to reinstate the research of significations and their origin into their own rights. Opposing relativism whereby each language imposes its speakers its own world outlook, Noam Chomsky seeks the generally human in language and thought. He thinks that without an innate universal grammatical structure no explanation could be provided for any normal child to acquire the rules governing the formation and understanding of a language; if we take into account the outstanding effort that the linguist should make in order to discover the construction and use patterns of a language, then we must admit that any speaker knows considerably more than he has learnt. "His normal linguistic behavior", he writes, "cannot be explained in terms of the 'stimuli control', of 'conditioning', of 'generalization and analogy' of 'construction', of 'usage patterns' or of 'response disposition' if a clear meaning is attached to these much abused terms." [21] Chomsky considers himself compelled to agree that people know the principles of language without having learnt them and that it is precisely these principles that are a prerequisite to learn a language. One could assume that the speaker of one language has to resort to the principle of cyclic application. "But — he notes — he lacks the data necessary to establish this principle. Hence, it seems reasonable to admit that this principle simply belongs in the innate schematism that the locutory audience used to interpret the limited and fragmentary data available." [22]

However, in order to speak and understand a language it is not sufficient to get it from the outside; an innate linguistic competence is necessarily needed. "To become awake, reason needs communication with an already moulded intelligence. But external stimulations are only needed to trigger off innate mechanisms; they do not govern the shape of what has already

[21] Noam Chomsky, *La linguistique cartésienne*, Paris, Seuil, 1969.
[22] *Ibid.*, pp. 180–181.

been achieved." [23] In Chomsky's outlook, acquisition of a language assumes the form of the encounter of that surface and *a posteriori* structures of that language with the deep and *a priori* structures of the human language. Speech then appears as an activity through which the surface structures of a language are formed starting from the deep structures of human language. "How should the initial structure of the human spirit look like, so as to be able to build a particular grammar starting from sensory data?" [24], Chomsky asks himself. He is thus convinced that the human spirit has an *a priori* logical structure capable of providing an intelligible shape to sensory data.

However, the question is whether the *a priori* logical structure of every man has not been formed *a posteriori* throughout the historical development of the whole of mankind, so that what is *a priori* ontogenetically has been *a posteriori* philogenetically. It is ever more probable that the a priori logical forms of thinking should have crystallized out through countless reiterations of the inductive-deductive inferences made with the help of speech. By learning its own mother tongue, the child takes in easily its grammar rules since it is endowed by heredity with the logical rules of any language. If, theoretically, logic speaks about speech, historically it is the outcome of the abstracting and generalizing ability of speech. Logic is nothing else than speaking of the grammatical structure of any language. Logic is the universal grammar of all the languages. To say "S—P" and "a R b" is to speak of the universal and a priori deep structure of any possible language.

All those maintaining the autonomy of thinking as against speech rely on the very fact that whereas speech is a particular vernacular or national, thinking is universal, that the development rate of thinking is considerably faster than that of speech, that an incorrect thinking could be understood, whereas incorrect speech jeopardizes understanding at a certain moment.

However, all these do not lead to the autonomy of thinking over speech, but only to the relative independence of the semantic dimension of language from its sound or written dimension. Through its metaphoric abstracting and generalizing energy, speech ultimately leads to the differentiation of logical from infralogical forms.

The logical structure of thinking is the outcome of a longstanding development of speech and writing.

From holofrastic speech and pictographic writing to propositional speech and alphabetic writing, speech has gradually advanced from the icon-like to its analytic stage. The logical structure of thinking is but

[23] *Ibid.*, p. 102.

[24] N. Chomsky, *La langue et la pensée*, Paris, Payot, 1969, p. 116.

the categorial and relatively a priori *posterior structure* of speech. It can be disclosed only by *a posteriori speech*, a meta-speech, a speech about speech, which is currently named logic.

Too little is known yet of the process whereby cultural acquisitions become natural, noosphere passes into biosphere, and tradition is turned into heredity. For the time being François Jacob can only say that "the genetic programme provided man the aptitude of language. It is this programme that enables him to learn, understand and speak any language" [25].

Anyhow, the problem of innate ideas is resumed in other terms today. There are psycholinguists holding that logic precedes language since learning of a language assumes the application of some a priori principles. However, it seems that it is not the ideas that precede the words, but the aptitude to speak logically which precedes any spoken language. The aptitude to speak logically any language starts being already stimulated ever since the earliest stage of human life, in intra-uterine life-stage, under the influence of maternal speech. Innate ideas do not exist prior to speech, they are implied in man's heredity ability to speak.

Spirit can influence matter only through the mediation of the *material-spiritual* structure of language. The projects of culture can turn into programmes of nature only through language. Speech has enabled transition not only from nature to culture, but also from culture to nature. Through speech man comes to ultimately reflect the most general properties of any relations among things and thus bring their reflection under the genetic code in the form of categories and principles of the speaking act.

St. Augustine said there is within us, something deeper than ourselves. But this "something deeper" does not seem to be God, but the genetic code and the aptitude to speak logically contained therein.

Thinking does not exist without speech, but it is not to be confused with the latter, either. There are psychologists considering that thinking is but "a subvocal larynx activity". It is clear today that the lack of utterance is not tantamount to silence when thinking, but to endo-steno-phonic speech. But thinking is not reducible to speech, it is the outcome of speech. Speech is the matter that thoughts are made of. Hence, there are no innate ideas unless innate is man's capacity to speak logically, viz., in keeping with the most general and unchanging properties and relations in reality.

Still, there are theorists who consider that a *non-verbal thinking* is possible. "Mental activity is in principle synergetic and seldom unilateral; polydeism is a normal phenomenon. There is a slow non-verbal thinking due to the spontaneous organization of memory and affectivity. Clear-cut ideas are

[25] François Jacob, *Logica Viului* (The Logic of the Living), București, Editura Enciclopedică Română, 1972, p. 341.

bred against a background of memories previously alerted, grouped and oriented by unconsciousness." [26] It is true that ideas are bred against a background of memories prompted by affectivity, but this intellectual unrest is only turned into idea in and through speech. The word is a carrier not of knowledge alone, but man's attitude to the known reality as well.

Freed from structuralism, semiotics secularizes the origin of ideas and raises man from the position of colportor to that of forger of ideas. Speech is a system of signs doubly articulated in signifying monemes and distinctive phonemes enabling signification to become ever more abstract and general through the metaphoric force of the significant thus permitting man to know the world and take a definite stand to it.

CONCLUSION

Everybody knows that there is a difference between oral and written, but few know what this difference lies in and how important it is for culture. People have created speech first, then writing. Children learn first to speak and only much later to write. There were never people that could not speak, but today there are still people that cannot write.

Experiences are changed to thoughts through speech. Writing is the graphic image of speech; writing is the visual significant of an audio significant spatialization of time, conversion into a reversible operation of some irreversible process. Whereas "verba volant", "scripta manent". A text can be re-read but never in the same voice, with the same intonation, at the same speed, with the same stress...

People have devised speech in order to exchange their intentions concerning the environment. In the beginning, speech referred to something "unseen yet", not to the "invisible", i.e. to a "hidden animal", not to the "essence of things". It expressed wishes and urges rather than knowledge. Being *direct* in the presence of the audience, *indicative* as it hints at the circumstances referred to, *variable*, according to the way of articulation, *personal*, according to one's inner disposition, and *irreversible* because of its temporal character, speech is prevailingly sensitive-affective and keeps knowledge in the neighborhood reality. Being *indirect*, in the absence of both writer and reader, *uniform*, according to the means used, *explicative*, in the absence of the circumstances referred to, *impersonal*, when detached from the inner disposition of the writer and *reversible* because of its spatiality, writing drives thinking towards ever more abstract and general logical significations. Speech reveals knowledge of similar properties, but delays knowledge

[26] C. Konczewski, "La pensée inverbale", in *Revue de métaphysique et de morale*, no. 1, 1969, p. 96.

of general properties, whereas writing contributes to knowledge of general properties but outdistances the individual. Speaking breeds a mentality where pragmatic activity and affective life have greater weight than intellectual work. Writing mainly stimulates thinking, writing requires considerably greater effort than speaking. To write means to outdistance the present considerably, to delay action on the environment, to ignore the numberless individual properties of things, and to prepare a more distant future action. Writing is much more difficult than speaking. Whereas speech is a cultural function added to some material organs, writing also implies some tool to write *with* and something to write *on*. To write man had to devise in turn the stylet, feather, pencil, pen, typewriter as well as parchment, papyrus, paper.

The abstracting virtues of writing increase while passing from pictography to ideography, and ultimately to phonography. The logocentrism of European mentality would have been impossible without alphabetic culture. Oral cultures cannot transcend a mytho-magical conception within which the "Essence" is reduced to an "Original phenomenon" and the "General" to "Genesis". Only alphabetic writing may outdistance the phenomena such as to enable reflection of some essences. All other writings are still too much bound to the individual image of things they refer to in order to enable thinking to know the universe.

But, like any kind of relief, alphabetic writing also casts shade : it overdevelops the mind at the expense of soul. Man in the West and Far West today computes increasingly more and lives increasingly less. There is a growing gap between science's overdevelopment and consciousness' underdevelopment. Men ask ever more often how a word is written and ever more seldom how it is pronounced, as if writing and not speaking were of paramount importance. Under the influence of writing, our speeches have become "spoken texts" rather than talks. A language is being aimed at that should be only written: the *logical syntax of science*. Universal language can no longer be spoken, but only written since it is no longer particularly national, or individually original, but only generally human. Only that the future world language will never be reduced to a like universal language, since people must convey to one another not only accurate knowledge, but also more confusing frames of mind, not only information but urges as well, not only the experience of all but also the experience of each. Language conveys not only truth, but also the good, and the beautiful. Through language people interchange communication not only on what identifies them, but on what differentiates them. Whereas speech has democratic tendencies, writing has bureaucratic ones. Speech tends towards dialoguing, writing towards monologuing.

It is not writing but speech that unmediatedly contributes to making one frame of mind turn into idea. Writing can but continue the abstracting and generalizing process, may be leading it to the elaboration of categories. While writing is the attire of thought, speech is its very body. When writing in a particular language, people are only left the freedom to choose the words and combine them in a personal way; when speaking, they also have the freedom to change intonation, speed, accent and mimic, not only to convey information on reality but their attitude to it as well. In order to maintain the fertile equilibrium between reason and sensitivity, interaction of the logical ability of writing and the affective intensity of speech must be permanently cultivated.

III. LOGICAL AND HISTORICAL IN THE HISTORY OF LOGIC

The importance of dialectical logic is not fully realizable unless it is set against the background of the whole history of logic. But then again the history of logic fails to be understood unless it is seen from atop, from the heights of dialectical logic. The history of logic can be thoroughly understood only by an *historian* who studies it *logically*. The essential meanings of the history of logic are discernible only in the light of dialectical logic, and dialectical logic discloses its importance in the light of the history of logic alone.

The logical is but the condensed expression of the historical. Logic today is the condensed expression of the history of logic. The history of logic is logic developed in the course of time. The history of logic is the process that has led to the setting-up of dialectical logic.

While from a historical point of view, the historical prevails over the logical, from the logical point of view, the logical prevails over the historical. The historical governs the logical, and the logical highlights the historical. It is through the logical that the historical becomes aware of itself. Ontologically, the cause is prior to the effect, but gnoseologically, knowledge of the effect is prior to knowledge of the cause. Through materialist-dialectical logic, the whole history of logic acquires awareness of itself.

The history of a science begins to disclose itself only after the science concerned has reached its heights. Until then, its historiographer is no more than a chronologist. Only the moment the history of a science passes from one stage of development to another is knowledge of its history possible.

The history of a science can only be traced back in the light of its latest achievement. The historical contribution of a scholar to the establishment of a particular discipline can only be assessed by referring his work to what was known in his time, viz., from the historical viewpoint, and to what is known today, viz., from the logical viewpoint[1].

[1] Referring to the two fundamental methodological questions, one concerning the historical, the other concerning the logical, Ion Banu writes: "What is the novelty of the respective theory as against the *past?*... What separates it from the future?... i.e. from dialectical materialism (Ion Banu, *Introducere în istoria filozofiei* (Introduction to the History of Philosophy), E.S.P.L.P., 1957, p. 181.

Nevertheless, when the nodal leap from one stage to another in the history of a science does not only consist in the usual dialectical negation, but in the negation of the negation, too, then a far deeper knowledge of the history of that science is possible.

No doubt that the history of logic could have been written after inductive logic and relational logic had been established. Attempts to that effect have already been made. But as histories of logic cannot avoid unilateralism, they fail to have a comprehensive view of the history of logic. "The history of logic", the Polish logician Jan Lukasiewicz wrote some time ago "should be re-written by a historian with a good command of logistic." [2]

Today, the history of logic should be re-written by an historian with a good command of dialectical logic. Only from the heights of materialist-dialectical logic can the full scope of the history of logic be realized, since by setting up the materialist-dialectical logic the *history of logic* becomes the history of the *materialist-dialectical logic* [3].

The present history of logic must thoroughly master not only materialist-dialectical logic, but also historical materialism, since the history of logic is a philosophical science, a social science and a highly party-spirited science.

This assertion does not in the least mean that the elementary rules of syllogism have a class character. Nor do the rules of dialectical materialism have a class character either. Logic and the history of logic have got a class character and are social sciences due to their gnoseological foundations. The materialist-dialectical interpretation of the laws of correct thinking proving, on the one hand, the objectivity of these laws — from the standpoint of materialism — and, on the other, the relative character of their validity — from the standpoint of dialectics — is what makes logic — the science of these laws — and the history of logic — the science of the gradual discovery of these laws — be social sciences and, consequently, assume a class character.

That is why the world outlook of the most advanced social class at a particular historical moment was always what enabled the elaboration of a rather scientific history of a social science. The viewpoint of the revolutionary class in a particular historical age is the most scientific at that moment of history, since, even though itself relative, it is nevertheless the most objective, i.e. the most adequate to history, and, hence, it is also a step forward on the ladder leading incessantly to the absolute truth.

[2] Jan Lukasiewicz, "Despre istoria logicii propoziționale" (On the History of Propositional Logic), in *Erkenntnis*, 1934, p. 112.

[3] By "materialist-dialectical logic" I understand not only dialectical logic, but the whole elementary logic of both essence and relation, materialist-dialectically substantiated.

Being the world outlook of the most revolutionary social class throughout history, dialectical materialism enables the elaboration of a rigorously scientific history of logic to finally clearly state both the object and the significance of materialist-dialectical logic.

Bertrand Russell is of opinion that philosophers of yore should not be judged in terms of the certainties acquired later on, but only of the uncertainties of their epochs. Materialist dialecticians are of opinion that past philosophers should be judged from *both* viewpoints, which are none other than the logical and the historical.

Not only can the logical be known through the historical alone, but the historical, too, can be known through the logical only. As a matter of fact, Bertrand Russell himself shares a logical point of view when stating that Aristotle is utterly outdated. "All those wishing to learn logic today would waste their time reading Aristotle or one of his disciples"[4], he writes. But Bertrand Russell's logical viewpoint is idealist-subjective logistic, and that is why Russell ignores Aristotle's materialist and dialectical merits as against the uncertainties of his age. "In modern times, each step forward, in science, in logic and in philosophy has been practically taken in fighting the opposition of Aristotle's followers" [5], Bertrand Russell stresses. Then which is the criterion entitling us to say a "step forward" has been taken? Only a logical viewpoint can show which way history goes. From the standpoint of neopositivist symbolic logic, every step towards logical formalism and against materialism and dialectics is a "step forward".

Absence of the logical viewpoint of dialectical materialism made some methodologists overlook historical continuity because of logical discontinuities. Many supporters of "modern logic" can no loger see any relationship between the logic of relations today and the logic of properties in former times. "We", Robert Lenoble writes, "speak of 'science' and of 'logic'. The marked verbal stability of those two words and the prestige they enjoy generate a highly detrimental prejudice. Substantially the same kinds of scientific explications, the same investigations, the same reasoning patterns are expected to be found in all epoch and with all spirit." [6] And further on Lenoble specifies: "In these days" the new scientific spirit "does not proceed according to a proto-science, but to a science of a different kind. It has always been the case." [7] With Lenoble the entire history of logic is a "detrimental prejudice".

[4] Bertrand Russell, *Histoire de la philosophie occidentale*, N.R.F., Paris, 1953, p. 221.

[5] *Ibid.*, p. 222.

[6] Robert Lenoble, "Types d'explication et types logiques au cours de l'histoire des sciences", in *Actes du XI^ème Congrès international de philosophie*, Bruxelles, vol. VI, p. 10.

[7] *Ibid.*, p. 13.

While in the second half of the 20th century Lenoble can no longer see the historical continuity of the various "logics", at the close of the 18th century Kant could not yet see the existence of the various logics and the "fratricidal" battle between them. "That *logic* has followed this path — already established now — since the earliest times, is obvious from the fact that eversince Aristotle it had to take no step backward; this is so unless we take as adjustments the discarding of some useless refinements or a more accurate determination of what was said, which, however, is more of the elegance than of the certainty of science. It should be recalled that not to this day was it able to take a step forward, and that, consequently, it looks complete and perfect" [8].

In fact, logic, also marked by the struggle of materialism against idealism and the struggle of dialectics against metaphysics, has always been and still is seething with the battle of the logic of essences against the logic of relations and the struggle of deductive logic against inductive logic.

The eclectic solutions of neopositivism are unable to soothe these thousand-year-old conflicts. It is only dialectical materialism that can put an end to those solutions as it reveals the *one-sidedness* of the trends involved; thus it succeeds in transcending them and opens a new era in the history of logic.

★

In the materialist dialectical world outlook, logic subsumes elementary logic and dialectical logic [9]. Both elementary and dialectical logic consist of deductive logic and inductive logic[10]. In turn, deductive logic and inductive logic include the logic of essences and the logic of relations, or the logic of identity and the logic of sufficient reason.

This structure of logic is governed by the fact that things have various qualities set in different inter-relationships, that people mirror the individual properties first and the general ones afterwards [11], and that the stability of things and of their forms of reflection is but relative, their self-dynamics alone being absolute.

First established in the history of logic was the deductive elementary logic of essences, then the deductive elementary logic of relations and only much later the inductive elementary logic of relations. In other words, Aristotle, Chrysippus, Epicurus and Bacon stand, on the four summits

[8] Im. Kant, *Critica rațiunii pure*, Casa Școalelor, București, 1930, p. 15.

[9] Elementary logic as such is not included in dialectical materialism, but dialectical materialism also substantiates today elementary logic, pointing to its objective substance and the relative character of its validity.

[10] Induction itself is not a logical process, while induction analysis is a logical operation. There is no logical induction, but there is inductive logic.

[11] People first mirror the accidental relations and then the necessary ones.

of logic, in the sequency of their entrance on the stage of the history of logic. The fact that all are prevailingly materialistic is no coincidence. The fathers of logic as a science have all started from considering reality such as it was. Only much later, actually in our times, was dialectical logic being established by Hegel. Because of its idealistic substantiation, Hegel's dialectical logic succeeded in transcending only unilaterally the elementary logic. Hegel's logic is but a deductive dialectical logic of essences. Hegelian dialectical logic is no relational logic or inductive logic either. Hegel developed only Aristotle's logic and not that of Chrysippus, Epicurus and Bacon. This huge task is now undertaken by materialist-dialectical logic.

★

In the beginning, in Chinese, Indian and Hellenic antiquity, all these components of logic appeared nondifferentiated, globally, synchretically, ultimately due to the restricted, nondifferentiated, superficial character of social practice.

It is as such that we find them in the world outlook of the ancient Chinese thinker Mo-di at the close of the 5th century B.C. In Mo-di's gnoseology, knowledge is a process made up of three essential moments : experience of previous generations, personal observation and logical thinking. "The so-called 'Moist patterns' ", Fong-Ju-lan writes, "also provides various logical classifications of knowledge. From the viewpoint of origin, there are three kinds of knowledge: knowledge deriving from the knower's personal experience, that conveyed by authority... and inferential knowledge, viz., the knowledge gained by deduction from known to unknown. Similarly, from the viewpoint of the various objects of knowledge, four kinds are discernible within it: knowledge of names, of realities, of relations, of actions" [12].

Moist epistemology contains still indistinctly and implicitly the unity between induction and deduction together with the idea of the prevalence of induction over deduction. In the opinion of Moists the agreement between notion and reality is necessary so that "thinking may guide reality" [13].

The materialism of Moist logic is obvious in the Moist theory of notions. According to Moists any name — viz., "min" — is substance and form. The substance is "shi", i.e. mirrored reality, and the form is "jan", i.e. the word [14]. The Moists do not distinguish yet between logical and linguistic forms, but they already grasp the distinction between logical form and gnoseological substance. With them, notion as a logical form is the word

[12] Fong-Ju-lan, *Précis d'histoire de la philosophie chinoise*, Paris, Payot, 1952, p. 135.

[13] Yan-Hin-shun, "The Epistemology of Moists", in *Voprosy filosofii*, no. 1, 1956, p. 155.

[14] Yan-Hin-shun, *op. cit.*, p. 155.

itself. "Reason, looking at things through notions, makes our knowledge clear and distinct" [15], the Moists say.

Nevertheless, Moist logic also contains many elements of dialectical logic. The Moists started from the idea that things were identical — "u" and "ti" — though different, but people should and could know the identity of various things with the help of names [16]. Realizing the unity between identity and difference, the Moists did not even occasionally doubt the possibility of predication. With them, non-existence has never meant "chaos" but existence of something else. Moists consider that definition is the most perfect form of mirroring the unity of the various things. However, they draw attention to the fact that what has not been perfected does not observe a rigorous definition yet, reason being in that case assigned the task to foresee its subsequent development. In Moist logic there is the *atemporal* logic of identity alongside a *temporal* logic of sufficient reason. "It is the cause 'gu' following which (the things) appear, and the result (of its action) is governed by its time duration" [17], the Moists say.

Later on, the differentiation of the means of production and of the relations of production led to differentiation of thinking and, ultimately, to differentiation of logical theories. The constituent parts of logic started developing independently, even opposing each other.

The battle between metaphysics and dialectics begins. The two diametrically opposite conceptions of Huei-shi and Cun-sun-Lun take shape. "Huei-shi and Cun-sun-Lun were two trends of the school of Names, one emphasizing the relativity of real things and the other — the absolute character of names." [18] Fong-Ju-lan writes: Huei-shi's outlook is materialistic and dialectical, Cun-sun-Lun's — is metaphysical and idealistic.

"Setting out today, yesterday already begins", Huei-shi notes, grasping the dialectical unity between continuous and discontinuous, between quantitative and qualitative changes. Disclosing the unity of contraries, Huei-shi writes: "Everything lives and dies at the same time." Huei-shi has also discovered the famous "Zenoian aporias" on movement and divisibility. "The fast arrow is neither moving nor at rest", Huei-shi says, suggesting that movement is the contradictory unity between point and interval. Huei-shi did not overlook the dialectical unity between finitude and infinitude either. "If half of a "chi"-long stick", Huei-shi says, "would be cut away everyday, it could not be finished even within 10,000 generations." [19]

[15] *Ibid.*, p. 152.
[16] *Ibid.*, p. 154.
[17] *Ibid.*
[18] Fong-Ju-lan, *op. cit.*, p. 101.
[19] Yan-Hin-shun, "Originile filozofiei chineze" (The Origins of Chinese Philosophy), in *Analele româno-sovietice*, philosophical series, no. 3, 1955, pp. 101—102.

I think Fong-Ju-lan fails to get to the depth of Huei-shi's dialectical judgments. "But then destruction", he writes, "is construction from another viewpoint. When a wooden table is being made, it is destruction in point of wood, all while it is construction in point of table. Since destruction and construction are relative, interlinkages can be separated without being destroyed." [20] In my opinion, Huei-shi aims at the internal dialectical unity between destruction and construction before the different viewpoints had emerged. Huei-shi's dialectical judgments refer to the development process of the contraries, and not to various relationships of the contraries to other things.

As opposed to Huei-shi, Cun-sun-Lun absolutizes identity and states that: "The wheel does not touch the ground", or that "The flying bird does not move". Huei-shi holds that in a white stone the hardness and the white colour exist separately. Cun-sun-Lun says: "If in the absence of hardness there is something that is white, then that means they are two." [21] If without white there is something hard, that means they are two. [22] Against the dialectics of Huei-shi, Cun-sun-Lun attempts to work out a metaphysics of identity. "Every thing is alone and true" [23], Cun-sun-Lun states.

The metaphysical development of elementary logic against dialectical logic has been historically and logically necessary. Otherwise no transition from a global, naïve-dialectical world outlook to a synthetic, scientific-dialectical one would be possible. According to the law of negation the analytic denies the global, which, in its turn is negated by the synthetic. Syncretic-analytic-synthetic! Here is the dialectics of the history of thinking, of thinking and the history of logic.

Failing to understand the deep-going significance of the works of the ancient Chinese logicians, and maybe particularly impressed by the dialectical character of their world outlook, bourgeois sinologists maintained, and they still do, that the Chinesse lacked a philosophy proper, that the logical concerns were alien to their mentality. "There is more of wisdom rather than philosophy with Ancient China" [24], Marcel Granet writes. In Granet's opinion the Chinese language "does not in the least seem to be organized so as to render *concepts*" [25], but "to convey feelings, to suggest attitudes, to persuade, to convert" [26]. Granet concludes that: "The Chinese are not appreciative of abstract symbols whatsoever" [27]

[20] Fong-Ju-lan, *op. cit.*, p. 104.
[21] *Ibid.*, p. 107.
[22] *Ibid.*
[23] Fong-Ju-lan, *op. cit.*, p. 109.
[24] Marcel Granet, *La pensée chinoise*, Paris, 1934, p. 4.
[25] *Ibid.*, p. 8.
[26] *Ibid.*, p. 82.
[27] *Ibid.*, p. 588.

and their logicians "illustrate a tradition of foreign origin which, as a matter of fact, did not succeed to become acclimatized in China" [28].

Jacques Chevalier is of the same opinion. "This rejection of the abstract and of the conceptual, of the qualitative and of the mechanical is the innermost care of ancient Chinese mentality..." [29], Chevalier writes. There are even some Chinese philosophers today like Yan-jun-go, who in his book *The History of Ancient Chinese Ideology*, published in Peking, in 1954, underrates the highly dialectical substance of Huei-shi's judgment and goes on calling him a sophist, according to a long-standing tradition.

Actually, the Moists and the famous school of Names fighting Confucianist idealism, that mirrored the interests of gentilic artistocracy, started developing gnoseology and logic from the stands of naïve materialism and equally naïve dialectics, voicing the interests that the artisans and merchants began to have.

In the history of logic in ancient China, with Moists, Huei-shi, Cun-sun-Lun played a part similar to that played by the Milesian Heraclitus and Parmenides in the history of logic in ancient Greece.

Indian logic is viewed by non-Marxist historians of philosophy much the same as Chinese logic. Indologists maintain that the Indian philosophers do not attempt to find out the truth through reason, but through feelings, through experiences. "In the opinion of India's thinkers, conceptual images are of little avail to the spiritual life, which alone is important..." [30], Chevalier writes. As a matter of fact, Indian logic, too, followed essentially the same course as, for instance, Chinese logic or Hellenic logic.

Highly interesting is the Jainist theory of judgment. Jainists divide knowledge into unmediated and mediated. According to Jainists, unmediated knowledge is in its turn of two kinds: absolutely unmediated, that only those "freed" are capable of, and relatively unmediated, viz., perception.

By confining "absolutely unmediated knowledge", i.e. immediate over-rational intuition of the essence of things, only to the "elated" ones, the Jainists actually discover the two stages of knowledge: the sensitive and the rational. They pay utmost attention to reasoning, but, starting from the idea that things do steadily change, the Jainists consider that a thing cannot be thoroughly and finally known all at once.

That is why every judgment should be limited by the word "syad" meaning that the judgment is true only as long as the object it refers to is the same.

Positivists, relativists and skeptics — all hastened to acknowledge the Jainists as their forerunners. But the Jainist theory of judgment cannot be considered positivistic, relativistic, or skeptical either, since it does

[28] *Ibid.*, p. 432.

[29] Jacques Chevalier, *Histoire de la pensée antique*, Flammarion, Paris, 1955, p. 49.

[30] *Ibid.*, p. 40.

not question the objectivity of judgment, but only stresses its relative validity: it does not refute the stability of things and of ideas mirroring them, but draws attention only to the relative character of that stability; it does not negate cognizability of things, it emphasizes only its processuality. The Jainist theory of judgment foreshadows the theory of the dialectical unity between objectivity and relativity of truths.

The battle between deductivism and inductivism in ancient India proceeded as the battle of the Carvaka school against Vedas und Upanishads. The Carvakists developed a materialist-empiristic theory of knowledge. Supporters of that school hold that the only authentic source of knowledge is perception. They did not trust the testimony of any person, or reasoning either. According to them, reasoning is an uncertain form of knowledge since an inadmissible "logical leap" from what is perceived to what is not is perceived within it. As nobody can perceive all the cases that a universal judgment refers to, the leap from perceived individual things to their unperceivable class or the leap from a class of things to an individual thing is unacceptable, the transition being a mere tautology, as will be said later.

Thus, by severing induction from deduction, the Carvaka school can admit but of the lowest form of induction: *full induction*. The battle against Vedantic reductivism prevented Carvakist inductivitists from telling the genus from the class, to discover the fertility of deduction and hence to transcend nominalism.

Interesting to note that the battle against Brahmanic dogmatism bridges over the centuries the gap between Carvakists and Mediaeval nominalists who fought Scholastic dogmatism while clearly distinguishing them from contemporary positivists who fight against the scientific apparatus of dialectical materialism.

The Vaiseshika and Nyāya schools developed while fighting Buddhist relativism.

According to Buddha, nothing exists, everything becomes. There is no matter, no soul or god either. Buddhists negated all existence. They refuted both the existence of lasting things and the lastingness of things. With them, the essence of the world is pure lastingness, i.e. nothingness, chaos, Nirvana. The essence of things is to be spoken only in the negative. To Buddhists, the essence of things is absolute nothingness which is not cognizable, for consciousness is always consciousness of something, but only livable, through the voiding of consciousness, since consciousness devoid of its content is no longer something, i.e. it is nothing.

The Indian scholars were those who, under the influence of Buddhism, discovered the negative magnitudes, the minus sign and the figure zero.

However, the Buddhists did not overlook logic. On the contrary, they strove to perfect it, to handle it as a weapon against the Brahmans in defence of their conception. Not for one moment did they negate the common significance of logic, but only its claims to reach the actual essence of things. If the ultimate essence of things is nothingness, then there is nothing to make things look different from one another or similar to one another, hence things are non-cognizable in their essence, the Buddhists argue.

From this argumentation it follows that the Buddhists were aware of the fact that the objective basis of reasoning is the unity between identity and difference on the one hand, and the interdependence of things on the other, but they considered that only the world of appearance is accessible to thinking. Only the world of appearance is relatively stable and hence, it is liable of assertions. On the essence of things only negative judgments could be stated. In the opinion of Buddhists logic is science and a means of thinking on appearances.

Buddhists also distinguish between analytic and synthetic judgments. Analytic judgments are themselves a synthesis of diversity, but this synthesis includes two representations for the same moment of reality, whereas synthetic judgments include two representations referring to two moments of reality. According to the Buddhists, analytic judgments are formed by virtue of the law of identity, whereas synthetic judgments are formed in keeping with the law of sufficient reason. "Thus, the indissoluble connexion may rely on two well-proved principles: the law of causality and the law of identity",[31] Th. Stcherbatsky writes when referring to Buddhist logic.

By paying special heed to the category of time, since plunging into Nirvana is a consciousness process, Buddhist logicians start paying greater attention to the law of causality and the law that Leibniz was to call "the principle of sufficient reason".

However, having reached dialectical judgments through some "Kantian" antinomies such as: "The world is eternal and temporary" or "The world is finite and infinite", the Buddhists stop here. When people, who can answer a question only in the affirmative or the negative, can no longer answer in the affirmative or negative either, it means that they have come across such questions which only Buddha can answer. "Omniscient, Buddha did not want to tell people the truth on a number of problems"[32], they said.

Consequently, for "higher" reasons that are beyond the scope of elementary logic, Buddha alone is allowed to think dialectically. Buddhists perceive the superiority of dialectical logic as against elementary logic, but they think that dialectical logic marks off the end of the cognition of

[31] Th. Stcherbatsky, *La théorie de la connaissance et la logique chez les bouddhistes tardifs*, Paris, 1926, p. 209.

[32] *Ibid.*, p. 239.

things and the beginning of understanding the Truth, the accomplishment of Nirvana.

Against Buddhist logicians who were also stifled in the "Cratylian" formula: "everything flows" and the moment of relative stability, thus, reaching nihilism, the logicians of Nyāya and Vaiseshika schools maintained that reality is the unity between existence and non-existence, that thinking, on the basis of perception, could and should be known. According to Indian logicians "existence that has already appeared contains the non-existence of its cause as reality" [33], and the assertion that, the syllogism is no process of authentic thinking, is as contradictory as the assertion "My mother is a sterile woman" [34].

To substantiate the possibility of predication, Indian logicians began to develop the dialectical category of negation. To them, non-existence is no longer chaos, but only lack of a particular perceivable thing. Unlike chaos, non-existence is *determined.* Non-existence is always non-existence of one particular thing and existence of another. Non-existence of a thing implies existence of another [35].

The specificity of the Indian solution of predicability lies in its aiming at *implication* rather than *identity*, at temporal relations much more than at atemporal characteristics. "For instance, while perceiving white cheese, we at the same time perceive the milk existing in the cheese in a negative form; while perceiving milk, we also perceive, in a negative way, the cheese that it will be soon turned into" [36], Kunarila writes. The present contains, in a negative form, both the past that it was born of and the future it will give birth to. With him, the past and the future, as the two contradictory moments of the present have the same value.

Indian logicians came nearer to understanding the dialectical logic, too. Kanada asserted that the atoms of the earth, water, fire, and air are eternal, uncreatable and deprived of extension but, by combining among themselves there results a variety of things that does not exist without extension. Thus, through accumulation and structuration, non-extensivity is turned into its opposite, viz., extensivity.

After distinguishing between two kinds of perception: common and supersensory, Nyāya logic specifies that the *essential-general*, unlike the *common-general*, can be known only through supersensory perception. Through common, sensitive perception a particular concrete man is perceived, whereas through supersensory perception, viz., rational, his humanity.

[33] *Ibid.*, p. 222.

[34] *Ibid.*, p. 210.

[35] In a negative judgment the following syllogism is implied: 1. There is no pot, 2. Since the pot that could have been, 3. Is not perceived (Th. Stcherbatsky, *op. cit.*, p. 218).

[36] Th. Stcherbatsky, *op. cit.*, p. 221.

They were aware of the fact that the essential-general was necessary whereas the common-general was accidental or proper, at the most. This is proved by the fact that the black color of the crow was considered as a common quality.

The supporters of the Nyāya school founded their logic on both the principle of identity, and that of sufficient reason. However, the logic of relations was of much greater interest to them, since it is a logic of succession and not of simultaneity, a logic which they deemed more adept to judge becoming. "Thus, reasoning", they hold, "is knowledge deriving from a particular relation of one perception to another..." [37]. That the Indian logicians were interested in the principle of sufficient reason, rather than in the principle of identiy, is clear from their syllogistics as a whole. "The idea indissolubly connected to another wherefrom it derives is called logical reason — *hetu* — or distinctive sign — linga — or proof — sādhana. The idea inferrable from the previous one is called logical consequence or proved thing — sadhya" [38].

The logical structure of the Indian syllogism relies on the category of "accompanying index", hence on the law of sufficient reason. The Indian syllogism is rooted in an axiom that could be formulated as follows: "If there is the index, there is the indexed, too". Here is the formal pattern of the famous Indian syllogism:

1. There is fire on the mountain,
2. Since there is smoke.
3. Where there is smoke there is also fire.
4. There is smoke on the mountain,
5. Hence, there is fire on the mountain.

The Indian syllogism comprises five statements of which the first is an assertion, the second is its substantiation, and the remaining three are the proof.

The first two statements are less the enthymeme of an Aristotelian Barbara and more the enthymeme of a Chrysippian ponendo-ponens. The remaining three are the syllogism that the enthymeme resulted from [39].

It is obvious that the Indian logicians considered only the univocal causal relations and that is why they did not analyze the difference between a syllogism where assertion of the antecedent is followed by assertion of the consequent but only the syllogism whereby thinking passes from nega-

[37] *Ibid.*, p. 69.

[38] *Ibid.*, p. 191.

[39] Later on, about the 5th cent., the Indian logician Dignaga, distinguishing between the grammatical structure of inner language and uttered language, considers that the first statements, the two statements at the beginning are a syllogism "to itself" while the other three, a syllogism "to another" (see Th. Stcherbatsky, *op. cit.*, pp. 185-190).

tion of the consequent to negation of the antecedent [40]. But then Indian logic, too, has been found to contain the development of all the constituent parts of logic.

Nevertheless, it is true that classical logic developed in ancient Greece because of special historical conditions.

Heraclitus and Zeno raised the question of the relationship between elementary and metaphysical logic on the one hand, and dialectical logic, on the other. Socrates, Plato and Aristotle developed the deductive elementary logic of identity, Chrysippus laid the foundations of the logic of relations and Epicurus anticipated the value of inductive logic.

Within the very frame of apophantic logic the historian is no more than the developed logical. Socrates is the theorist of the concept. Plato is the theorist of judgment and Aristotle the theorist of syllogism. The first, striving to discover the category of "good", reveals the notion as logical form, the second, rejecting the Sophists' relativism and loosening the principle of identity, substantiates predicability, whereas the third discovers the logical function of the middle term and, consequently, the whole formal structure of the syllogism.

The Stoics, by refuting the existence of general *qualities*, set their logic on the existence of general *relations*, and Epicurus, realizing the fertility of induction, discovers the source of the syllogism.

Against Heraclitus who had reproached the Eleatics, that "they failed to understand that though dissimilar, it was the same", Zeno absolutizes the principle of identity and negates the possibility of movement.

To Zeno, both the continuous and the discontinuous are illusory phenomena. He opposes the two possible conceptions on movement and rejects them both. "Which make his argumentation comparable to Kant's antinomies" [41], Victor Brochard notes. Here is Zeno's proof:

> If there is movement, there is multiplicity, too. The elements that multiplicity consists of are either divisible or indivisible. *Dichotomy* and *Achilles* negate divisibility. The *arrow* and the *stadium* negate indivisibility. Hence, there is no multiplicity. If there is no multiplicity, there is no movement.

Discovering dialectics from the stand of metaphysics, Zeno used dialectics against dialectics to the advantage of metaphysics. The problem was to know how "a number of divisions, inexhaustible by definition, can and must be exhausted so that movement should occur" [42]. Zeno could

[40] See also acad. A. M. Deborin, "Materialismul şi dialectica în filozofia veche indiană" (Materialism and Dialectics in Old Indian Philosophy), *Voprosy filosofii*, no. 1, 1956, and N. F. Gorlytsyn, "Despre filozofia antică indiană" (On Ancient Indian Philosophy), in *Analele rom.-sov.*, philosophical series, no. 3, 1955.

[41] Victor Brochard, *Etudes de philosophie ancienne et de philosophie moderne*, Paris, Vrin, 1926, p. 13.

[42] *Ibid.*, p. 9.

not go beyond the principle of absolute identity and, consequently, discarded the very possibility of movement. But his arguments are actual dialectical judgments. That is why Brochard is right in drawing our attention to the fact that "it might be better not to speak of Zeno of Elea's sophism, but of his arguments" [43].

Against Eleatic metaphysics which absolutizes the relative identity of things, and also against sophists, who merge the relative identity of things into their very movement, Socrates turns the principle of identity into a lay principle and discovers one of the methods leading to notion: *maieutics*.

Socratic maieutics has often been referred to as a kind of induction. But maieutics is not conducive to *formation* of notions through the unmediated contact with things, but to *awakening* of some innate notions through a skillfully conducted dialogue. "Dialogue implies maieutics" or "its Platonian equivalent — reminiscence : it only implied reference to a kind of intimate record-keeping" [44], Octav Hamelin writes.

Against the various sophists who refuted the possibility of judgment and maintained that the judgment: "Man is good" is impossible and that people are unable to get beyond the tautologies: "The man is man" and "The good is good", the same as against those denying the validity of any judgment, since things change at such a rate that nobody has time to judge them, contending to point at them, Plato proves the possibility of predication. To Plato, non-existence is not chaos, it is just *something else*.

The sophists refuted judgment since they could not conceive of "something" capable of merging with "something else", viz., with something which it is not; they could not conceive of a possible unity between existence and non-existence. Commenting on Plato, Brochard writes that "non-existence, because real, will have to be existence, and since it is non-existence, it will have to be something else than existence. It will be *another* existence" [45]. Judgment is therefore possible. "Once the existence of non-existence is proved, the problem of error will be solved: error will mean saying something different from what it actually is, since there is non-existence, and still say something, because there is non-existence." [46]

One of the biggest discoveries in the history of logic, namely the *discovery of the middle term*, was required for the constitution of logic. That is why Aristotle, the discoverer of the middle term, is also the undisputable founder of logic as a science.

"With Aristotle", O. Hamelin writes, "to learn means to *prove*: he has the idea of the middle term and of the proof..." [47].

[43] *Ibid.*, p. 22.
[44] Octave Hamelin, *Le système d'Aristote*, Alcan, Paris, 1931, 2nd edition, p. 11.
[45] Victor Brochard, *op. cit.*, p. 132.
[46] *Ibid.*
[47] O. Hamelin, *op. cit.*, p. 11.

But Aristotle establishes only apophantic deductive elementary logic. Aristotle's disciples — Theophrastos and Eudemos — but particularly the opponents of Aristotelian logic, the Stoics, are those who, under Hellenism, establish the deductive elementary logic of relations [48].

Against Aristotelian logic rooted in the axiom "Dictum de omni et nullo", Stoic logic is rooted in the axiom "if there is a condition, then there is a consequence, too". The idea of law replaces the idea of essence. The Aristotelian formula: "There is no science but that of the general" is replaced by the formula "There is no science but that of the necessary". "To the Stoics", Jacques Chevalier more recently notes, "the real is to be found only in individual beings, and rational knowledge is no longer aimed at the *essence of things* which is a mere word to them, but at the necessary *connections whereby* the universal necessity of nature is expressed." [49]

To the Stoics, who hold that no induction can exhaust all things referred to and hence that it does not deserve to come to general truths, the Epicureans reply that there is no need at all to scan everything surrounding us, but that a large number of different things of the same kind should be observed and, by observing their inseparable qualities, to be able to grasp all the rest by induction [50].

Epicurus himself foresaw the fertility of induction. "We should say", he writes, "that, on the contrary, the lasting essence of bodies comes from all these things taken together. All are the object of one's own intuition or impression, but perception of the whole is simultaneous and cannot be severed, since each of these things can only be conceived within the totality of bodies." [51]

The Middle Ages took up mainly Aristotle, but only after having him dressed as a monk and having his head tonsured. "Scholasticism was neither religious, nor scientific; against the frailty of logic it resorted to faith; it submitted its dogma to the most punctillious reasoning and reasoning to the most literal acceptation of the dogma..." [52].

Against this "tonsured Aristotle", according to Herzen's famous phrase, Bacon resumes the inductivism of the Epicureans, to which he adds the

[48] See Henri Wald, "Contribuție la studiul logicii stoice" (Contribution to the Study of Stoic Logic), in *Analele Universității "C. I. Parhon"*, no. 8, 1957, philosophical series, p. 75 ff.

[49] Jacques Chevalier, *op. cit.*, p. 427.

[50] Georges Lion, "La logique inductive dans l'école épicurienne", in *Bibliothèque du Congrès int. de philos., Histoire de la philos.*, I, Colin, Paris, 1902, p. 223.

[51] Epicur, in vol. *Texte filozofice* (Philosophical Texts), București, E. S., 1950, p. 25.

[52] A. I. Herzen, *Textes philosophiques choisis*, Moscow, 1950, pp. 253—254.

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cause-to-effect relationship, and Descartes develops the relational deductivism of the Stoics. The very Cartesian "cogito" is in fact but the enthymeme of a hypothetical-categorical syllogism, the premise of which is, in the last analysis, the conclusion of an induction:

X.Y.Z. exist
X.Y.Z. think.
Therefore, those who think exist.

If I think, I exist
I think
Therefore, I exist.

Descartes comes to know of his existence through intuition, but, logically, this intuition necessarily assumes the form of a syllogism.

Sure, the followers do not continue their forerunners only by some purely spiritual, exclusively theoretical affinity. Decisive in that respect were the feudals' interests, as far as the Scholastics were concerned, the interests of the rising English bourgeoisie for Bacon, and of the timid French bourgeoisie for Descartes. Class interests were, in the last analysis, decisive as to who was to follow whom.

Likewise, the development of the natural sciences, particularly that of mechanics, also contributed to a considerable extent to Bacon's inductivist and Descartes' quantitativist orientation.

Later on, the logic of relations was continued by Leibniz who was the first to state the principle of sufficient reason [53], inductive logic was systematized by John Stuart Mill and apophantic logic was developed by Im. Kant.

Hegel was the first to understand the relationship between elementary and dialectical logic, but he failed to clarify the relationship, as he underrated the whole of elementary logic, and particularly inductive and relational logic. Hegel's dialectical logic is entirely affected by the objective idealism it relies on.

Nor are the class interests and the ideological conditions governing the world outlook of Leibniz, Mill and Kant, on the one hand, and of Hegel, on the other, difficult to be traced back.

The history of logic, too, is ultimately governed by the history of the social practice of mankind.

Today, the elaboration of materialist-dialectical logic is, in its turn, governed by the new historical conditions we live in.

[53] "Our reasonings are rooted in *two great principles*, that of *contradiction*, by which we take as false what includes it and as true what is opposed or contrary to the false. And *that of sufficient reason* whereby we consider that there is no fact that will be proved true... unless it has sufficient reason to be that way and none other " (G. W. Leibniz, *Principes de la nature et de la grâce fondés en raison*, P.U.F., 1954, p. 89).

IV. PRACTICE: THE CRUCIAL POINT OF KNOWLEDGE

In his struggle with nature man first set out to know his environment. For a long time the external world has been his only object of knowledge. Only much later did knowledge become its own object. At first, matter acquired self-consciousness to subsequently assume consciousness of itself and of its knowledge. The primitive man is fully absorbed by the external world. Existence overwhelms his consciousness. The *object-subject* duality stays unfamiliar to the primitive man for a long time. Primitive consciousness is "adualistic". Man has no differential knowledge from the very beginning. He "places everything within a whole without distinguishing between an external or objective pole, and an internal or subjective one. Consequently, he knows the surface of things and the surface of himself, i.e. more exactly the zone where action meets its object, if one may say so" [1]. In primitive man's struggle against nature, the object is by far more powerful than the subject. "To primitive man, existence is therefore a far more mighty power than consciousness... The self-motion of knowledge is due to the difference in power, extant from the very beginning, between existence and consciousness, and which materializes in the acquisition of new cognitive abilities changing the force ratio in favour of consciousness" [2] Max Raphaël writes, but he immediately adds that " the supremacy in point of origin of existence over consciousness never fully dissolves..." [3]. And as in the history of thinking, knowledge of the object preceded knowledge on the knowledge of the object, so in the history of philosophy, ontology preceded gnoseology. Even after elements of the theory of knowledge had appeared in the world outlook of various philosophers, ontology continued to prevail for a long time. It is true that already Socrates had focused thinking onto itself. "The revolution wrought by Socrates in the field of thinking lies in the fact that thinking has become an object *in se*; ever since, there has been considered that truth is not the real, *such as it is in se, but as it is in consciousness; truth is the real that has reached consciousness*" [4]. However, both Plato's idealist logic and Aristotle's materialist logic are equally imbued with ontology. None of the Greek

[1] Jean Piaget, *Introduction à l'épistémologie génétique*, vol. III, Paris, 1950, p. 283.
[2] Max Raphaël, *La théorie marxiste de la connaissance*, N.R.F., Paris. 1937, p. 33.
[3] *Ibid.*, p. 37.
[4] A. I. Herzen, *Textes philosophiques choisis*, p. 191.

philosophers did ever think to refute the existence of the external world... "subjectivism is alien to the ancients and to Aristotle more than to anyone else", Octave Hamelin notes [5].

So long as gnoseology was but an appendix of ontology, the *ontological distinction* between subject and object observed the *gnoseological contradiction* between subjective and objective. In the world outlook of ancient philosophers, objective dialectics intermingled with subjective dialectics. Problems specific to the theory of knowledge only started being given due consideration by philosophers in modern times, when capitalism reduced society to numberless individuals, comparatively independent one from another, lonely before the world, at variance with everything outside themselves. "In this freely-competitive society", Marx writes, "the isolated individual appears detached from the natural links, etc. that had made of him part of a given limited human aggregate during the previous historical epochs" [6].

If stability of social structure and the still rudimentary stage of the progress of scientific knowledge in Greece during the 6th, 5th and 4th centuries, favored the development of broad ontologies, disintegration of the old social relations due to the advent of capitalism and the considerable expansion of scientific knowledge resulted in a blossoming of gnoseology. The sharpening contradictions between the new and old social classes, between the new scientific knowledge and the old philosophical interpretations, between "myself" and "the other" brought to the fore the question of building a new organon. However, in concentrating on emphasizing the *objective* character of knowledge the materialists overlooked the consideration of its dialectical character. The idealists took advantage of the materialists' neglecting the dialectics of knowledge, and after having subjectivized the relative character of knowledge, thus developing subjective idealism, they took over the initiative of investigating the process whereby some forms of knowledge passed into others.

Pre-Marxist materialism failed to clarify the *dialectical character of reflexion*, whereas subjective idealism has always refuted the *reflective character of dialectics.*

As long as dialectical materialism had not cleared up the contradictory unity between essence and phenomenon, between objective and subjective, between sensitive and intelligible, and between relative and absolute, materialism was not able to win the battle against idealism. Correctly oriented but analytically poor, the gnoseology of pre-Marxist materialism could

[5] *Le système d'Aristote*, 2nd revised ed., Alcan, Paris, 1931, p. 97.

[6] Karl Marx, *Contribuţii la critica economiei politice* (Contributions to the Critique of Political Economy), E.S.P.L.P., 1954, p. 206.

not defeat the gnoseology of subjective idealism, erroneously oriented, if rich in analyses.

However, by their struggle, knowledge became richer, philosophy advanced, thus paving the way to the first scientific world outlook to appear, dialectical materialism. Thenceforth, the idealist-subjective gnoseology would not be able to withstand long the offensive that the materialist dialectical theory of knowledge had set off. Subjective idealism could not expect to emerge victorious in his battle against a conception, having succeeded to transcend by a qualitatively higher synthesis the one-sidedness of either conflicting camps [7].

★

The struggle of materialism against idealism, waged throughout the history of gnoseology, should not be reduced to the confrontation of the two potential answers on world cognoscibility. Not all idealists contested the possibility of world cognition. In the history of gnoseology, the struggle of materialism against idealism — a fundamental law of the entire history of philosophy — centred on the four basic questions pertaining knowledge: *What? How? How much?* and *What purpose?* do we know. To each question, four possible answers opposed one another. To the question *what* do we know, materialism answered that material things are the object of knowledge, idealism that the absolute idea is the object of knowledge, or that we can know only our feelings and ideas, dualism replied that the object of knowledge is half matter and half spirit, whereas positivism said that the object of knowledge is neither material, nor spiritual, but neutral, such as experience is, in their opinion.

To the question *how* do we know, empiricism, whether materialist or idealist, answered that the only source of authentic knowledge are sensations, rationalism answered that reason provides the only path conducive to truth, irrationalism replied that the only means of revealing the essence of world is through exaltation of affects, and logical empiricism said that contingent truths can be reached through the senses, whereas necessary truths — through reason.

To the question *how much* do we know, dogmatism said that we could not know everything all at once and definitively; skepticism — that we can never know anything, relativism — that we can know only some sides, at certain moments, whereas pragmatism answered that our truths were

[7] Metaphysicians found it particularly difficult to understand the dialectical character of this synthesis. Convinced that "materialism is static and simplifying" whereas "dialectics is dynamic and idealistic", Emile Bréhier considers dialectical materialism as "a highly paradoxical syntagm, since dialectics is linked to idealism, i.e., opposed to materialism" (Emile Bréhier, *Les thèmes actuels de la philosophie*, P.U.F., 1956, pp.62—63).

only ideas which, under particular circumstances proved useful, but in no way did they refer to objective reality.

Finally, to the question for what purpose do we know, some said to ensure effectiveness to our actions, others, more contemplative, said it is in order to get adapted to environmental conditions, while still others — that it is just for fun, to escape everyday life. None of the schools having contended on these four fundamental questions of knowledge came to understand that even though spirit is opposed to matter, it is nevertheless its highest outcome, that although ideas are qualitatively superior to sensations, it is the latter that they derive from, that absolute truth results from the accumulation of relative truths.

Idealism and dualism had long before understood that spirit is opposed to matter, but they never admitted that matter could breed its opposite; while realizing that spirit is the outcome of matter, pre-Marxist materialism has failed to grasp the qualitative distinction between spirit and matter.

Revealing the dialectical character of the unity between matter and consciousness, between practice and theory, the sensory and the rational, speech and thinking, and between concrete and abstract, while also underscoring the primordial character of the first terms of these pairs, dialectical materialism succeeds in working out a scientific theory of knowledge.

*

Ever since the 19th century the problem of knowledge has assumed outstanding significance. Gnoseology was propelled to the foreground of philosophical concerns. Almost all the schools of non-Marxist philosophy nowadays refute the validity of any theories on the categories and laws of nature and society that reduce the fundamental problem of philosophy to the question of knowledge.

This preference for gnoseology of contemporary non-Marxist philosophers has deep-going class roots.

After having spelt out so many "mysteries" of nature and society, it is not so easy to back philosophic theories that hold, in an outright religious language, or in a "positivist" or categorical one, that God made the world and that He has guided it ever since.

True, like thinkers are not altogether absent from the non-Marxist philosophy today. "20th century scientific revolution no longer allows the idea of an end to times to be considered with the same grain of irony" [8], the French neothomist F. Commeau writes. After asserting that "beyond

[8] F. Commeau, "Science et apocalypse", in *La table ronde*, February, 1957, p. 174.

the individual or collective death of mankind, we shall no longer live in space, but in positive time which is the form of eternity" [9], hence, not in a negative time as ours is, always negating the present and constantly pushing it back into the past, Commeau, as if duly considering the latest advances in the natural sciences, "substantiates" his thesis by the following explanation: "Energy and time are but the same reality seen under its two aspects of intensity and succession. Likewise, it is all but natural that they should vary together and terminate concomitantly; when universal motion ceases on account of lack of energy, time stops and life, which is motion, hence energy, hence time, is gone with them" [10].

Neither is socialism left unnoticed by contemporary theologians. "Socialism", that same Commeau writes, "i.e. the steadily more advanced organization of society and the common property of the whole wealth, is a necessary if not ultimate stage of human evolution" [11]. Jacques Madaule, also points to the fact that: "Unlike the apocalyptic catastrophe, revolution can never establish a perfect and definitive state" [12], thus, he tells those who take him in earnest that "as a matter of fact, things are heading somewhere, towards a big unknown, where order shall replace disorder and motionlessness displace motion" [13].

Nevertheless, it is mainly by other means that non-Marxist philosophy today attempts to defend mysticism, so necessary to the political rule of a social class that has been at odds with history.

The tremendous development of the natural sciences has ultimately compelled idealism to withdraw, generally, from ontology and seek refuge in gnoseology. Steadily receding before science that has constantly chased it by discovering evermore laws of nature or society, idealism was compelled to change tactics and attack science slyly in the back, refuting the objective validity of its discoveries.

Attaching only an instrumental significance to science, contemporary non-dialectical philosophers restrict the scope of philosophy to logical processing — actually altering — of the data provided by science. Since nothing real is embodied in scientific formulae which are but arbitrary constructs of the subject, philosophy can be only a grammar of scientific language.

"We believe", Louis Rougier writes, "that philosophy may become scientific, when science itself becomes its object and the logical analysis

[9] *Ibid.*, p. 178.
[10] *Ibid.*, p. 180.
[11] *Ibid.*, p. 177.
[12] Jacques Madaule, "Apocalypse et révolution", in *La Table ronde*, February, 1957, p. 108.
[13] *Ibid.*, p. 103.

of its notions, propositions, theories, and proofs as its method"[14]. André Darbon is right when showing that "if we think of no object, we can think only of words; this logic is therefore the grammar of a speech where words will change their form, will get inflections and endings and will be arranged in a definitive order according to rules"[15]. "The logicians of the School of Vienna", Albert Lautman writes, "claim that the formal study of scientific language should be the only object of the philosophy of science. Here is a thesis hardly acceptable to those philosophers assuming to work out a coherent theory of logic-to-real relationships as their essential task"[16]. Rudolf Carnap, for instance, "considers that physics is not a factual science, but a language allowing for experimentally checkable statements"[17], and André Darbon believes that the "object of pure mathematics is well-connected and well-conceived speech"[18].

Reaching the conclusion that "we can therefore get real knowledge of the external world of physics, but that it always consists of ratios or, in other words, of numbers"[19], Sir James Jeans concludes piously: "...God made mathematics and man — the rest"[20]. "We leave science to you, naturalists, but we keep gnoseology, philosophy for us—these are the conditions for the concubinage between theologians and professors in the 'advanced' capitalist countries", Lenin wrote already in 1908[21].

Therefore, specialization of present-day non-dialectical philosophers in gnoseology has not resulted in the improvement of human knowledge but in its sterilization. More than ever before, the agnostics of our days are striving to prove the impossibility of the real world to be known, to dissipate people's confidence in their ability to improve the world they live in.

To make knowledge definitively turn away from reality, present-day agnostics have little by little restricted philosophy to gnoseology, gnoseology to logic, logic to grammar.

That is why the task to refute agnosticism and develop Marxist-Leninist gnoseology is so topical today.

[14] Louis Rougier, in *Actes du Congrès international de philosophie scientifique*, I, Paris, 1935, p. 8.

[15] André Darbon, *La philosophie des mathématiques*, P.U.F., 1949, pp. 172—173.

[16] Albert Lautman, "Mathématiques et réalité", in *Actes du Congrès international de philosophie scientifique*, VI, p. 24.

[17] *Ibid.*, p. 26.

[18] André Darbon, *op. cit.*, p. 47.

[19] Sir James Jeans, *Physique et philosophie*, Paris, 1954, p. 22.

[20] *Ibid.*, p. 30.

[21] V. I. Lenin, *Opere* (Works), vol. 14, p. 275.

The object of knowledge consists of an infinitude of things which are as many forms of manifestation of moving matter, which are infinitely interrelated, self-developing through qualitative leaps from lower to higher forms on account of their inner contradictions.

Any thing is the contradictory unity between its essential and phenomenal side. Any process is the contradictory unity between one fact and the law governing it. Any thing or process is the dialectical unity between its individual and general sides, between its quantitative and qualitative sides, between its content and form [22], between its qualities and relationships.

The essential side of a thing consists of all qualities without which that thing is no longer itself, and its phenomenal side consists of all those qualities that may change within specific limits without that thing cease from being itself. Whereas the phenomenon, viz., all that is individual, quantitative, accidental in a thing or a process, is permanently changing, the essence, viz., the qualitative, general, necessary side of thing or a process is temporarily constant. Within the two specific nodal points through which a particular quality appears and disappears, it is the essence that preserves the unity of the thing, its quality. It is *through its essence* that a particular thing is identical to all the other things of the same quality, of the same kind. *Through its phenomenal side* it differs from all the other things of the same kind [23].

Therefore, the essential side of one thing or process is both necessary and general at the same time. All things of the same kind have necessarily the same essence. Each thing of a particular kind, together with its necessary and general essential features, identifying it with all the things of the same kind, has also its accidental and individual phenomenal features that distinguish it from the other things of the same kind.

Thus, the thing is neither essence nor phenomenon alone, it is the unity of these contraries; the object of knowledge is neither individual nor general alone, but the unity of those contraries; objective processes are neither facts nor laws alone, but the unity of these contraries; the external world is neither characteristics nor relations alone, but the unity of these contraries.

The contradictory structure of things governs their self-dynamics. If during their relative stability it is the essence of things that governs their

[22] The *form* of things is often mistaken for their *appearance*. Actually the form of one thing is its very essence, its quality, its type, whereas, on the contrary, its appearance belongs to its phenomenal, individual, quantitative, accidental side.

[23] Two identical things are impossible as long as they are *two*, but several things having the same identity are possible.

quality, in the transition from one quality to another the change of phenomenal characteristics is governing. A thing is what it is due to its essence, but a new thing appears due to the accumulation of phenomenal changes. The relative stability of essence preserves the thing, whereas absolute motion of phenomenal characteristics revolutionize it. Essence is the quiet side of things. The fact that things are being transformed is due to the *contradiction*, between the conservative function of essence and the revolutionary function of phenomenon, but the fact that characteristics are changed only after they have lived their lives, is due to the unity between these two contradictory functions[24]. Self-development of things proceeds according to the laws manifest in the quantitative interrelations among the various stages of the process. Relations are not only among various things, but also among the various stages in the self-development of the same kind.

Law is a necessary, general and essential relationship. "Law", Lenin writes,[25] "is *relationship*... Relationship of essences or relationship among essences". But even though "...law and essence are concepts of the same kind..."[26], law and essence are not to be confused. Essence is made of qualities, whereas law is relationship. The qualities of things are prevalent over *relationships among things*. There are no relations without substantials. There are no relations without relata. The fact that the essence of things is the identity of various things of the same kind does not in the least mean that the essence of things is also a relation between things, but only that it is manifest through relations: "...the properties of one thing", Marx writes, "are not born out of its relation to other things, they only become obvious in that relation..."[27].

Metaphysical materialism failed to grasp the qualitative difference between essence and phenomenon, metaphysical idealism exaggerated it, leaving the phenomenon on the Earth and lifting the essence to Heaven; Hegel, by lifting also the phenomenon to Heaven, came to underrate it, whereas subjective idealism, by incorporating the phenomenon into subject and forbiding thinking from looking into essence, exaggerated it once again, down to its ultimate consequences. And since, chasing the essence out of philosophic concerns always leads to the object of knowledge as

[24] The conversion of phenomenon to essence and of essence to phenomenon is often referred to. I think that phenomenon as such cannot be converted to essence, or essence as such to phenomenon. Against the sophistic abuse of dialectics I reassert that dialectical materialism opposes not only metaphysics, but Hegel's dialectics as well; change of phenomenon leads to change to essence, but the phenomenon stays phenomenon and the essence — essence.

[25] V. I. Lenin, *Caiete filozofice* (Philosophical Notebooks), E.S.P.L.P., p. 122.

[26] *Ibid.*, p. 120.

[27] Karl Marx, *Capitalul* (The Capital), București, 1947, p. 88.

a reduced set of relations, present-day subjective idealism attempts to substitute the logic of quantity for the logic of quality, the logic of relations for the logic of essences, the logic of the individual for the logic of the general. Speculating on the essential characteristics of things, which by phenomenalizing them, are also reflected by a number of quantitative relations, contemporary idealism tries to push mathematics at the head of all sciences[28].

But the object of knowledge is the objective dialectical unity between essence and phenomenon between quality and quantity, between the necessary and the accidental, between the general and the individual, between things and relations.

The degree of essentiality of certain objective characteristics is not "given" by people, but only *discovered* by them. Certain characteristics are essential not because people are interested in them; it is the people who are interested in them precisely because they are *objectively* essential.

By discovering the contradictory character of the unity between essence and phenomenon, dialectical materialism stresses both the contradiction between essence and phenomenon, and their *inseparableness*, hence their *dialectics*.

2. THE WAY TO KNOWLEDGE

All beings get adapted to their environment. Otherwise they would die. But what distinguishes man from all other things is his ability to "adapt" the environment to suit his needs. In the course of man's activity, adaptation to environment was superceded by transformation of nature. Asking himself "what characteristic feature distinguishes the pack of apes from human society?", Engels replies: "It is labor"[29]. There is a qualitative distinction between animals' actions and human activity. "... The animal", Engels further writes, "only uses the nature around and induces changes in it only by its presence, whereas man, by the changes wrought, submits nature to his goals, masters it"[30].

Anthropoids turned to men the moment they could act consciously on the course of events. "Mastering nature, which began in the process of work and when a more skilful ability of the hand was achieved, broadened man's horizon with every new advance"[31], Engels specifies. Man's knowledge

[28] See also *Revue philosophique*, no. 3, 1956, pp. 382--383. "It (Hellenic science) is an institution of the essence of things, whereas our science, by far more modest in its avowed goals, claims to undertake only the study of the relations among them."

[29] F. Engels, *Dialectica Naturii* (The Dialectics of Nature), E.S.P.L.P., 1954, p. 173.

[30] *Ibid.*, p. 179.

[31] *Ibid.*, p. 171.

of the world started and went on expanding in the process of work, in practical activity. Practice is the only unmediated link between subject and object, between man and the external world. Practice is the material activity of people in all the fields of social life, primarily in production. "As an activity aimed at acquiring the elements of nature in one form or another, work is a natural condition of human existence, a condition outside any social form that the exchange of materials between man and nature takes on"[32] Marx writes. Practice, work, is no spontaneous action of nature upon people, but the conscious activity whereby people change materially their environment.

That is why it is not in the least surprising that people may reflect the objective reality through their consciousness. Man is but one form of material organization at that level of an activity where existence acquires consciousness of itself.

By placing the subject in material contact with the object, practice proves to be two-sided, viz., objective and subjective. Practice is a process where objective activity on things becomes interwoven with the subjective thinking and living of that activity.

People get knowledge of the world through labor and not through contemplation. Knowledge becomes more comprehensive when people's rule over the spontaneous forces of nature and society grows in scope and strength. At the time when man succeeded to make but very coarse implements, he only availed himself of a few invariable, isolated words rendering a syncretic global substance.

Roger Garaudy is right to assert that "... the language (hence thinking too — *H.W.*) of the primitive man can be traced back upon analyzing the implements uncovered by excavations: these implements are the repositories of those people's thinking, they are their fossilized thoughts..."[33].

It is through practice that the dialectical structure of the object of knowledge governs the dialectical structure of knowledge of the object. Failing to understand the role of practice in the process of knowledge, the theory of reflection is still a vicious circle. We are content with the replica since we cannot have the original; but then if we can't have the original, how do we know that what we have is its replica?

That is exactly what Mircea Florian, the logician, thinks. "The theory of replica-knowledge came across an unsurmountable obstacle, even though it did very well so far having by-passed or ignored it. The obstacle is the elementary question: how do we know that the substance of consciousness (perceptions, ideas) is made of replicas or photographs of the external

[32] K. Marx, *Contribuții la critica economiei politice* (Contributions to the Critique of Political Economy), E.S.P.L.P., 1954, pp. 26—27.

[33] Roger Garaudy, *La théorie matérialiste de la connaissance*, Paris, 1953, p. 183.

things? The word replica would be justified if, alongside the replicas, we could have the things themselves to compare with. But then, what would be the use of replicas or images if we have the very things, or else, if we don't have the things, what right do we have to speak of their replicas? There is a vicious circle there: I use the replicas, the only available, to have the things themselves but we resort to things to speak of replicas or images"[34]. By such a reasoning, M. Florian is bound to conclude that "in-between datum and consciousness there is no gap"[35], that "knowledge is an unmediated possession of the object by consciousness"[36]. Hence that the "replica-theory much the same as the construct theory of knowledge are equally unfounded"[37].

It is true that ontologically, the subject is no more than a thinking object. But gnoseologically the thinking subject is qualitatively different from the object thought of. Whereas the object thought of is infinite, the thoughts whereby the subject reflects it are finite; the object of knowledge is absolute, whereas our knowledge of it is relative; things are phenomenalized essences, our ideas of them are essentialized phenomena; in objective reality the cause precedes the effect but in the subjective mirroring of objective reality, knowledge of the effect precedes by far knowledge of the cause.

Mircea Florian is perfectly right when stressing that "knowledge is no relationship of ego to things"[38], that "thinking is no invention, but discovery"[39], but by fighting "the myth of the creative work of thinking" which underlies subjective idealism, he underrated any kind of activity, both the practical activity of the subject on the object, and the theoretical one of the knowledge of the object by the subject. By refuting all gaps separating the subject from the object and all "substance of consciousness", Mircea Florian closes the main door of philosophy to idealism, but forgets to lock it. Idealism may creep back any time, since by suppressing the gap separating the subject from the object and the subjective character of the forms of knowledge, the supreme criterion of truth becomes void, and everybody may claim to hold the truth[40].

[34] Mircea Florian, *Ce este cunoştinţa?* (What is knowledge?), Casa Şcoalelor, 1947, p. 36.

[35] *Ibid.*, p. 56.

[36] *Ibid.*, p. 57.

[37] *Ibid.*, p. 46.

[38] *Ibid.*, p. 57.

[39] *Ibid.*, p. 54.

[40] Equally wrong are those contemporary philosophers considering dialectics as incompatible with monism.

"The dialectical opposition — one of them writes — is characterized primarily by the tendency to avoid reduction of the two terms to one alone (Aline Lion, "Notes sur une nouvelle formule du mouvement dialectique", in *Actes du XI*ème *Congrès interna-*

"The dispute over the reality or unreality of an isolated meditation on practice is a purely scholastic matter", K. Marx writes in his second Thesis on Feuerbach.

Doubtless, there is nothing of the external world that we can know otherwise than by the subjective forms of knowledge. "It is understood", Engels notes, "that we shall never know how chemical rays are perceived by ants. There is nothing we can do to those worrying about that"[41]. But we can know if our perceptions and ideas faithfully mirror the objective reality by confronting them, in practice, with the normal course of things. If things go the way our ideas have assumed to, then our ideas are true, our subjective forms mirror the objective course of things. In practice, only our *suppositions* are subjective; the *behavior* of things is objective.

If we succeed in discovering an objective law of a particular kind of things, we can act more efficiently on any thing of that same kind. "Nature can be commanded only if we obey it...", Bacon writes.

Therefore, we may know the world such as it exists independent of man, but we can only know it humanly. In other words, only the way we come to know the world is subjective; what we come to know through practice is, however, objective.

Mircea Florian is right to refute subjective idealism, showing that "the action, which belongs to the body, was taken over by consciousness and thus creation turned from fact into *inner creation*"[42], but we cannot agree with him when holding that "the problem remains the same if instead of creation, only the processing or ordering and *organizational* activity is conceded to spirit"[43].

"To think is always to explore the hidden deposits of experience"[44] Mircea Florian says. However, is all this strenuous thinking activity reducible to "steady attention in progress?"[45] Can notion be no more than the relation of the object to some word?"[46] Can "Logical laws be the laws of what is thought, and not of thinking?"[47] It is rather difficult to admit that "what we are exclusively given as a law of thinking is actually a law of speaking"[48].

tional de philosophie, vol. XIV, p. 212). But dialectical monism does not reduce the two terms to one alone, it only explains that the subject is born of the object, by a qualitative leap.

[41] F. Engels, *Dialectica Naturii* (The Dialectics of Nature), p. 244.

[42] Mircea Florian, *op. cit.*, p. 50.

[43] *Ibid.*, p. 48.

[44] *Ibid.*, p. 54.

[45] *Ibid.*

[46] Mircea Florian, *Curs de logică* (A Lecture of Logic), vol. III, 1944–1945, p. 60.

[47] *Ibid.*, p. 23.

[48] *Ibid.*

Thinking as activity is governed also by the normal course of things and by the people's practical action on them. Through practice the dialectics of the objective reality governs the dialectics of the process of knowledge. In practice the dialectical structure of the object of knowledge governs the dialectical structure of knowledge of the object. The contradictory unity between essence and phenomenon, quality and quantity, general and individual, necessary and accidental, etc., governs the contradictory unity between sensory and rational. Through practice, objective dialectics governs subjective dialectics.

The subjective character of the forms of knowledge — overlooked by ancient materialists and exaggerated by idealists — starts from sensations. "Consciousness", Max Raphaël writes, "distinguishes the action of the external world on its specific reality, down to perceptions where the objective substance assumes a subjective form"[49].

Man's senses differ fundamentally from those of other beings. Bats, for instance, can hear more sounds than man, but, out of the fewer sounds he can hear, man has created immortal symphonies. In the process of transforming nature, man's senses, perpetually co-working with his reason, get a somewhat fading, if many-sided, image of things as compared to animals'. "For it is not only the five senses, but also the so-called spiritual senses, practical sense (will, love, etc.) in a word the human sense; the humanity of senses is bred only by its existing object, by humanized nature"[50] Marx points out. In this respect there are differences even between the people of the various epochs. "The sensory consciousness of the fetish-worshipper", Marx writes, "differs from that of the Ancient Greek because his sensory existence differs"[51].

Handling rudimentary tools, which helped them change only superficially their environment, primitive people were by far more sensitive to differences between things than to their likenesses. The consciousness of backward people is overwhelmed by the impressions around, by the unmediated contact with the individual aspects of things. For all its liveliness, their sensory experience is quite poor. The Chocktaws, for instance, have numberless words to designate the various oak species, but they do not have the word *oak* for they lack the notion of the oak.

Had our senses not become sharper through work, and had they stayed "...just like a keyboard that the surrounding nature touches.."[52] as

[49] Max Raphaël, *La théorie marxiste de la connaissance*, p. 49.

[50] Karl Marx & F. Engels, *Despre artă şi literatură* (On Art and Literature), E.P.L.P., 1953, p. 35.

[51] *Ibid.*, p. 34.

[52] Diderot, *Oeuvres philosophiques*, Paris, 1956, p. 274.

Diderot thought, people would not have succeeded to discover the essential features of things or their laws of development, either. True, the essential features of things are not induced by work, but they become apparent only in the process of work. A sensory experience severed from practice can only lead to concrete sensory thinking. It is social practice that refines the senses and steadily pushes human knowledge forward from the sensitive stage onto the logical one [53].

Sensations — the first stage of sensory reflection — mirror the various phenomenal features of things and the surface relations among them. Grouped together, sensations yield perceptions, mirroring an entire part of the phenomenal side of things. *Re-presentation* of some perceptions that have mirrored things now remote in time or space makes up the representations.

By concentrating consciousness on particular things attention helps sensations group into perceptions, memory enables representation, and imagination is involved in passing from the sensitive to the intelligible.

One should take into account the contradictory character of all these functions. Attention to one thing is simultaneous with inattention to another; memorizing particular features implies forgetting some others. Imagining new things means negating existing images [54].

Representations do not only imply memorizing the reflection of some phenomenal characteristics, but also forgetting the reflection of the other phenomenal characteristics. Representations, all while confined to mirror the individual character of things alone, are nevertheless closest to the rational, they are the last stage of the sensory. Representations retain from sensory reflection only the most constant phenomenal characteristics of the things perceived.

Inattention to the other things, forgetfulness of the other phenomenal features and transcendence of current images are the sensory dialectical negations preparing the dialectical negation of the sensory whole and formation of the concept. Whereas from the gnoseological point of view between perception and representation there is only a quantitative difference since, unlike perception, the representation mirrors less individual features of things, between representation and notion there is a qualitative difference, since notion no longer reflects individual features of things. Representations can only reflect individual features, whereas the notions only

[53] The superiority of logical thinking over sensory reflection was not questioned by Diderot either, even though it failed to understand the qualitative leap from the sensitive to the intelligible. "One proof alone", he writes, "strikes me more than fifty facts" and further on he stresses: "I trust my judgment more than my eyes" (*op. cit.*, p. 41).

As a matter of fact, judgment may help people grasp even the invisible.

[54] The image reflects the real, and imagination is conducive to reflection of the possible, too.

reflect the general ones. It is only through a qualitative leap that knowledge can pass from sensory to logical.

But how can we get to those common or rather general features[55] of all the things of the same kind? *That* is the question that must be answered. After the general features have been discovered, their abstracting is not difficult to understand. What must be explained, however, is the process whereby knowledge comes to mirror general characteristics. Otherwise we leave the theory of reflection to further rely on a vicious circle: men discover essential characteristics by abstracting essential characteristics!...

As a matter of fact, deriving general from individual characteristics out of their general-individual unity is precisely to abstract. The phonetic complex is involved not only to reinforce the outcome of abstracting — the abstraction, the notion — it also takes part in notion formation[56].

To claim that notions are formed by retaining general features and overlooking the individual ones is to hold that notion formation is impossible without already formed notions, since general features can be mirrored only by notions.

In their practical activity people can act only on the individual features of things. Through sensations, governed by the unmediated contact with things, people can reflect only the phenomenal aspect of things. Then how is it possible to retain the general features which are not to be encountered in practical activity? In their activity aimed at changing the environment, people do not act upon, say, the hardness of stones, but only on some hard stones. An upholster cannot mend the property of being a chair, but only the individual things sharing that property.

But the individual properties of things are constantly different. That is why their reflection in people's consciousness does not get firmer, on the contrary, it fades away. The reflection of individual properties cause their mutual fade-away. In the practical process the sensory reflection of individual features constantly fades away. At a given moment, by incessantly acting upon *various* things of *the same* kind, and by uttering the same sound complex, by a dialectical leap, people succeed in suddenly mirroring general features as well, their reflection being fixed in notions. In this way, the sensory reflection of individual properties is transcended by the rational reflection of general properties. The qualitative leap from sensitive to intelligible is achieved through dialectical negation: sensory reflection is negated,

[55] Unlike general characteristics which are always essential, common properties can also be phenomenal.

[56] Which is what I tried to prove in *Rolul limbajului în formarea și dezvoltarea ideilor* (The Role of Language in the Formation and Development of Ideas), Editura Academiei, 1957, p. 36 ff.

the subject-to-object correlation set through it is preserved, the logical forms of reflection being thereby established.

Hence, the process achieved through concept formation is not retention of general properties, but the fade-away of the reflection of individual properties. Thus abstracting is also preceded by a negating process.

Reason succeeds in reflecting the general properties of all things of the same kind only at the end of a *fade-away* process, of *overlooking* the sensory reflection of the individual properties whereby the general properties become manifest.

The fade-away of the sensory reflection of individual properties and retention of the rational reflection of general properties are not *simultaneous processes*, the formulation of which can be *reversed*, as it is generally assumed, but *successive* processes[57]. Fade-away precedes retention and renders it possible. In the fade-away process, equally governed by practice, which claims the knowledge of the general properties of things it acts on, no general properties can be retained. General properties are accessible to reason alone. And reason succeeds in mirroring them through a negation process: the gradual overlooking of the sensory reflection of the individual properties of the various things of the same kind. The qualitative leap from sensory to rational is precisely what distinguishes and links these two successive processes of overlooking the individual properties and retaining the general properties.

The notion is thus formed through a discontinuous act. But this discontinuity whereby notion is formed is not understandable if taken off the continuity of the reflection process.

Not for one moment should the dialectical unity between continuity of the reflection process and discontinuity breeding notion be overlooked. However, discontinuity is not tantamount to emergence, to occurrence out of nothing.

A dialectical leap is always a concrete, not an abstract negation. A dialectical leap negates while preserving something out of what is being negated, or else it would not be transcendence. The dialectical leap whereby negation is being formed negates the sensory reflection of the individual, but it preserves the unmediated contact with the object, established through it. The dialectical leap breeding notion *severs*, but it also *joins*, the rational from the sensory.

Among those who failed to understand that through practice people could only prepare retention of the essential features of things and by

[57] Neopositivists, who have definitely placed objective reality and its development trend between brackets, consider that the judgments: "The Sun moves round the Earth" and "The Earth moves round the Sun" have the same knowledge value, since measurements are the same.

no means to actually retain them was also the author of these lines who wrote not long ago: "As in their social practice people come across the common, general features of things more often than their individual, non-repeatable features, they start naming them, and change their reflection to notion"[58].

Abstractization whereby the content of notions is formed and generalization whereby their sphere is formed are the two edges of the outcome of induction. Abstractization and generalization means revealing the essence and the general and formation of the concept.

On passing, through induction, from mirroring of phenomena to reflection of the essence, knowledge leaves the impression that it is driving apart from objective reality. As a matter of fact, it only drives apart from the surface of things, all while drawing near to their core. Motion of knowledge toward the object can only proceed dialectically: "to step back only to get better to the point"[59], Lenin remarks.

Human consciousness can derive the general out of individual things of the same kind only by driving away from the individual side of these things.

In this process of human consciousness driving apart from objective reality, the social character of human practice was decisive. "The first system of signalization", Roger Garaudy writes, "was born in the process of the animal's direct relations with nature, the second, in the process of people's relations to society, in the process of man's indirect relations to nature, through social relations"[60]. Undoubtedly, one should take into account the very societal development which is ultimately governed by the improvement of tools, which... "while meant to enhance the bodily activity, lessens the direct involvement of the whole body in the act of knowledge"[61], hence increasing the relative independence of thinking without which people could not grasp the general.

Induction is precisely the process whereby human consciousness gains the necessary independence to the environment to penetrate the essence of things.

Thus, induction is no logical form, but a gnoseological process[62]. Induction is not reasoning, as so many handbooks of would-be Aristotle's

[58] Henri Wald, *Rolul limbajului în formarea şi dezvoltarea ideilor* (The Role of Language in the Formation and Development of Ideas), p. 36. But resorting to practice does not in the least explain *how* knowledge steps up from the sensory onto the rational, it only points to its *cause*.

[59] V. I. Lenin, *Caiete filozofice* (Philosophical Notebooks), p. 253.

[60] Roger Garaudy, *La théorie matérialiste de la connaissance*, Paris, 1953, p. 184.

[61] Max Raphaël, *op. cit.*, p. 41.

[62] Induction requires a considerably smaller intellectual effort than deduction. Induction can be spontaneous, too, whereas deduction can only be conscious.

logic claim, but only transition from the sensory to the rational. Induction is not "the reasoning which helps a general conclusion to be drawn from singular or particular premises"[63] it is above all "transition from a particular case to the universal"[64]. That by "particular cases" he understands individual sensitive things and not "particular judgments", Aristotle himself draws our attention to when saying that: ..."to induce is impossible for him who has no sensation, for it is precisely the particular cases that sensation is applicable to"[65].

"Induction", Ath. Joja stresses, "is therefore motion from the sensory level onto the logical one; transition from concepts to concepts is deduction"[66].

Most of the handbooks of logic distinguish between induction and deduction, maintaining that whereas deduction proceeds from general to particular judgments, induction goes the other way round. Even the well-known Soviet logician D. P. Gorski continues to believe that induction is "transition from singular to universal judgments", overlooking the fact that induction proper is no transition from one judgment to another, but transition from reflection of the individual to reflection of the general with the help of particular judgments at a particular moment.

True, Gorski foresees the essence of the inductive process, even though he still retains the old bias. "If", he writes, "we conceived induction in a broader acceptation, i.e. not only as transition from singular to universal judgments, on the ground of the analysis of the various representatives of the class under consideration, but generally, as transition from the singular to the general, underlain by a factual study, then the process of induction would occur in other generalizing processes, too..."[67]. The qualitative specificity of induction is thus left unrevealed.

There are other logicians today who admit that logical thinking begins precisely where induction ends, that the beginning of reasoning coincides with the end of induction "...as long as induction proceeds, true logic has not yet started"[68], Victor Brochard specifies. And the French logician Louis Rougier definitely states: "Reasoning is deductive or else it is not"[69].

[63] S. N. Vinogradov & A. F. Cuzmin, *Logica* (Logic), E.S., 1951, p. 123.

[64] Aristotle, *Organon*, V, *Les topiques*, tome I, trad. J. Tricot, Paris, Vrin, 1939, p. 29 (I, 12).

[65] *Ibid.*, IX, *Les secondes analytiques*, quoted edition, pp. 96–97 (I, 18).

[66] Ath. Joja, "Elemente pentru explicarea deducției și inducției" (Elements for Explaining Deduction and Induction) (II), in *Cercetări filozofice*, no. 4, 1955, p. 243.

[67] D. P. Gorski "Despre procedeele de generalizare" (On the Generalizing Processes), in *Voprosy filosofii*, no. 5, 1958, p. 67.

[68] Victor Brochard, *Etudes de philosophie ancienne et de philosophie moderne*, Paris, Vrin, 1926, p. 430.

[69] Louis Rougier, *La structure des théories déductives*, Paris, 1921, p. VIII.

It is worth mentioning that, influenced by the eclectic solution of logical empiricism, all these logicians perceive the qualitative difference between sensory and rational, between induction and deduction, but they no longer perceive their unity, the self-same process of these two moments. "As a matter of fact — Abel Rey asserts — there is only one rational way to reason — through deduction, if you want to give the word its full meaning: ... Any valid formulation of an induction is deductive"[70]. The dialectical leap from sensory to rational, from induction to deduction induces a deeply religious frame of mind to I. M. Bochenski. "Induction", he concludes, "is no rational approach, but a kind of *divination*"[71].

Induction prepares the qualitative leap from the sensory to the logical and is completed through concept-formation, viz., through a deductive act, whereas a concept is in the first place the predicate of the conclusion of an implied syllogism. The moment the leap from sensory to rational is achieved, induction is reversed and turned into deduction, and the discovery of the general coincides with the identification of the kind of thing belonging to it.

The moment the concept of, say, "table" is formed the induction that has prepared it is replaced by the following categorical syllogism of the first figure, Barbara mode:

A. All the objects having the a.b.c. characteristics are tables
A. This thing has the a.b.c. characteristics
A. This thing is a *table*[72].

When one says "table", one actually says "this thing is a table", because it is a "thing having the a.b.c. characteristics" and it is known that "all things having the a.b.c. characteristics are called tables". Viewed as a kind of "object with a.b.c. characteristics", "this thing" was identified as "a table", too.

Between induction and deduction there is a dialectical unity. Unless it ends in a deduction, induction is not yet induction. Any deduction is, in the last analysis, the outcome of an induction.

Within the induction-deduction contradictory unity, induction is primordial since it provides the basis for deduction, and the raw material wherefrom it takes out its specific forms of reflection.

It was the prevalence of induction over deduction that Herzen probably had in mind when writing that, whereas Cartesianism could be considered

[70] Abel Rey, *La jeunesse de la science grecque*, Paris, 1933, p. 515.

[71] M. Bochenski, *La philosophie contemporaine en Europe*, Payot, Paris, 1951, p. 198.

[72] The sound-complex "table" is unmediatedly involved in the very formation of the notion: "object with a.b.c. characteristics".

as the "lobby of truth", according to a phrase of Leibniz, Baconism could be looked upon as its "storeroom"[73].

But then there can be no induction without deduction. If induction, which leads to the discovery of the general and formation of the concept, necessarily needs deduction for completion, induction, which leads to the discovery of general relations and formation of universal judgments, needs deduction all the more, since it can no longer develop without notions.

The general relations that this induction derives from, are between certain things, states or characteristics that can be identified in the light of some concepts [74].

Transition of knowledge from mirroring some accidental relations to mirroring necessary ones is also a qualitative leap in the reflection process. It is the gnoseological leap from empirical to rational, from synthetic to analytic judgments, from mirroring the real to mirroring the possible[75].

Before it has accomplished the logical leap from synthetic to analytic judgments, induction can have only the following scheme:

X.Y.Z.	are	A's
X.Y.Z.	are	B's
Some B's	are	A's

The scheme of this induction resembles a categorial simple syllogism of the 3rd figure, Darapti mode, where the middle term is not a *kind*, but a *set*. The predicate of the minor premise being undistributed, it remains so as subject of the conclusion, too, thereby governing the particular character of the conclusion. But a like conclusion only sums up the individual cases investigated. It does not go beyond mirroring the real. Hence, a like "induction" is no induction [76]. Induction must terminate in a universal judgment. But to draw a universal conclusion out of the above premises is to inadmissibly extend the sphere of the minor term. However,

[73] A. I. Herzen, *Textes philosophiques choisies*, p. 288.

[74] Since to identify a thing is to recognize the kind it belongs to, identification of one thing is the outcome of briefly repeating the induction that has led to the knowledge of the kind it belongs to. This accounts for the overlapping of any thing of the same kind and the notion reflecting its kind. That explains why a particular house cannot be identified for instance by the notion of "wardrobe".

[75] Induction does not proceed from less general to more general, but from individual to general. In induction particular judgments are in a median position, they being confined to summing up the individual cases considered. Universal judgment that induction ends with ceases to be a hypothesis as soon as practice has proved the essential character of the relationship it mirrors. A "post hoc" foreseen and purposely produced is certainly a "propter hoc". Nature obeys only him who knows its laws. The inessential is not the object of science.

[76] The principle of induction is: "If all A's that have been observed are B's, then all A's are B's".

a like conclusion can be drawn, but it stays a simple hypothesis so long as it does not check out experimentally. The moment the hypothesis was experimentally checked, induction is reversed to deduction and the old hypothesis thus becomes the major premise of the new syllogim:

All B's	are	A's
X.Y.Z.	are	B's
X.Y.Z.	are	A's

It is worth noting that the major premise of this syllogism is not a total, but a universal judgment. That is why it would be more correct to state it as: "Any B is A"; its subject does not mirror a set, but a kind.

Inductive transition from reflection of some unessential relations to reflection of essential ones does not always imply investigation of a huge number of cases. "The steam engine", Engels specifies, "has proved most tellingly that mechanical motion can be obtained from heat. A single steam engine proved the fact as convincingly as 100,000 engines"[77]. Once the essentiality of some relations has been proved, their generality is proved, too. Generality is no more than the quantitative side of essentiality. Discovery of essentiality is preceded by discovery of generality. However, when we have to do with an invention, essentiality is known before generality.

Failing to understand the dialectical character of the leap from the sensory to the logical, M. Dorolle concludes that induction is rooted in a twofold belief: determinism and uniformity[78]. But as V. Brochard rightly noted, "the belief is the subjective counterpart of objective reality"[79]. Induction relies on the objective dialectical unity between the individual and the general.

Failing to understand the objective dialectical unity between the individual and the general and hence, the subjective dialectical unity between the sensory and the rational, too, empiricists underrated the role of reason, rationalists that of experience, ecletics placed them parallel, while irrationalists refuted both of them.

David Hume, for instance, holds that "even though our thinking seems to share this boundless freedom, on a closer examination, we shall find that it is confined to very narrow limits and that all this creative power of the spirit can only compound, transpose, enhance or diminish the material supplied by our senses and experience"[80]. Further on, Hume specifies: "...we shall find everywhere that any idea we consider is a replica

[77] F. Engels, *Dialectica naturii* (The Dialectics of Nature), p. 232.

[78] M. Dorolle, *Les problèmes de l'induction*, Alcan, Paris, p. 143.

[79] V. Brochard, *op. cit.*, p. 393.

[80] David Hume, *Cercetare asupra intelectului uman* (An Enquiry Concerning Human Understanding), Societatea Română de Filosofie, p. 16.

of the respective impression"[81]. Nevertheless, logical thinking discovers what sensory experience cannot provide: the general. The idea is no replica of an impression but of an essence that cannot impress. Spinoza, who was convinced that "to fully reproduce the order of nature, our spirit must derive all its ideas from the idea reproducing the origin and source of the whole nature so that the idea should be in turn the source of the other ideas..."[82], considers that sensory thinking is the "only cause of falsness"[83]. Referring to the highest kind of knowledge, Spinoza underlines: "this kind of knowledge goes from the adequate idea of the formal essence of some of God's attributes, to the adequate knowledge of the essence of things"[84].

Leibniz, who starts from the idea that "the same God who is the source of all goods is also the principle of all knowledge", thinks that "knowledge of facts almost resembles that of London streets, which is good as long as these do not change".

Neither Spinoza nor Leibniz could understand that the object itself is at once individual and general, that the two contradictory stages of knowledge mirror successively the two contradictory sides of the object.

Bacon realized the need to join these two stages of knowledge. "In this way", he writes, "our most promising hope is the close, lasting alliances of the two faculties — experience and reason (union which was not completed yet)"[85]. But as he failed to realize the dialectical leap of knowledge from sensitive experience to logical thinking, Bacon only required that the two stages of knowledge should meet. "Empiricists", he writes, "like ants, are content to gather and use their supplies afterwards; rationalists, just like spiders, spin cobwebs whose material is taken out of their own matter. The bee is in-between the two; it derives the raw material from the flowers in the gardens and fields, to subsequently process and digest by its own art. True philosophy does something like that..."[86].

Bacon could not reveal the dialectical character of the unity between experience and reason, and he could not consider them fully heterogenous either, placing them back to back, as logical empiricists do today.

To a supporter of logical empiricism, sensory experience gathers facts and logical thinking states the syntactic rules of their organization. By calling empirical the propositions referring to facts and tautological those

[81] *Ibid.*, p. 17.

[82] Spinoza, collection "*Texte filosofice*" (Philosophical Texts), E.S., Bucureşti, 1952, p. 45.

[83] Spinoza, *Etica* (Ethics), E.S., Bucureşti, 1957, p. 128.

[84] *Ibid.*, p. 127.

[85] F. Bacon, *op. cit.*, p. 80.

[86] *Ibid.* Later on Diderot understood somewhat more; he foresaw one of the roles of practice: "Observation gathers facts. Reflection brings them together. Experience checks out the outcome of their bringing together". (Diderot, *op. cit.*, p. 189).

on their organization, logical empiricists utterly sever the sensitive from the intelligible. "Only tautologies are certain. Empirical propositions are all hypotheses that can be proved or disproved by actual sensory experience"[87], Alfred Jules Ayer writes. Hence, only propositions that are not referring to facts are certain. In Ayer's opinion, certainty can be obtained only by breaking the link between the sensory and the logical.

"Nothing happens in reality to rigorously correspond to logic"[88], Nietzsche claimed, too, in the later half of the past century, concluding: "in that case, logic would be a requirement meant to lead us not to knowledge of truth, but to the definition, the combination of a universe which we should look upon as true"[89]. Through Søren Kierkegaard, Henri Bergson, Martin Heidegger, and others, anti-intellectualism attempted to bypass both experience and reason and to find another means of knowledge, more authentic than either of them. From the desire for power of Nietzsche to the despair, anxiety, worry and disgust of existentialists today, irrationalism has constantly tried to place affective life above reason.

Between existence and transcendence there lies the "kingdom of silence", according to existentialists. Truth resides there. Man can know the truth only when in an "extraordinary condition", when affective tension suspends his reason. Existentialists do not take human judgment for a mirror of reality, but for a curtain constantly falling between existence and transcendence, hindering knowledge of truth.

Bergson, to whom a piece of iron is "melodic continuity"[90], as it is for Whitehead too, is angry with the ancient Greeks "to whom approximation did not suffice and devised precision"[91], and tries to multify the distance between subject and object through intuition which he defines as "the sympathy whereby somebody is being taken inside an object... to overlap what he has as unique, hence, inexpressible"[92].

However, Martin Heidegger thinks that philosophy is in the service of language, not the other way round, that "philosophy is an exquisite mode of speaking" (eine ausgezeichnete Weise des Sagens)[93], that it is but "correspondence enabling the appeal launched by the existence of the existent to reach language"[94].

[87] A. J. Ayer, *Langage, vérité et logique*, Flammarion, Paris, 1956, p. 130.
[88] Nietzsche, *La volonté de puissance*, I, N.R.F., 15ème éd., Paris, 1942, p. 69.
[89] *Ibid.*, p. 71.
[90] Henri Bergson, *La pensée et le mouvant*, P.U.F., 12ème éd., 1941, p. 78.
[91] H. Bergson, *L'énergie spirituelle*, P.U.F., p. 88.
[92] H. Bergson, *La pensée et le mouvant*, p. 181.
[93] Martin Heidegger, *Was ist das —die Philosophie?*, Günther Neske Pfüllingen, 1956, p. 45.
[94] *Ibid.*, p. 46.

Irrationalism wrought a twofold reversal of knowledge as a process: after having reversed the normal relation between the two sides of sensitivity: cognitive, consisting of sensations, perceptions and representations and affective, consisting of emotions, feelings and passions, it also reversed the normal relation of sensitivity to thinking.

Perceptions mirror things in their individuality and affects signal their value to consciousness. Therefore, affects play a secondary role in the process of knowledge. In order that they assume some value, first and foremost, things must exist. The logical forms of thinking mirror the essence of things, and the extra-logical forms of thinking mirror their value, implicitly, of course, through reflection of the affective reaction of the subject to the object [95]. The extra-logical forms of thinking are but the affects having assumed consciousness through language, colors, sounds, stone, etc.

From the gnoseological point of view, affects are therefore not superior to reason; on the contrary, they are inferior to it.

In the absence of thinking and language the affects would become lost just like unreceived signals. Values would remain undiscovered if affects had nobody to signal to. "Feeling *discovers* and *shows* the values by way of attraction and repulsion, and not by way of the intentional image of objects"[96], Antoine Terstenjac holds. But he ignores that it is precisely language which discovers and shows. "There is no sense prior to language... much as there would be no dream for he who would never awake"[97], Jean Hyppolite also remarks.

Only by revealing the dialectical unity between object and subject in the process of practice, between the two sides of sensitivity and between sensitivity and reason, may we approach a scientific theory of knowledge.

Some non-Marxist philosophers today are well aware that such gnoseology is necessary. "The need is felt", Francesco Morandini says, "for finding the coincidence of sensitive perception with the intellective, which is after all but the need to discover the link between the logical and the real"[98].

Only that "the link between the logical and the real" was already discovered by K. Marx and F. Engels more than one hundred years ago: *labor*.

[95] Otherwise, values can be mirrored explicitly too, through value judgments, after social practice has confronted them with the objective laws of societal development.

[96] Antoine Terstenjac, "Le rôle cognitif des émotions", in *Actes du XI*ème *Congrès Int. de phil.*, p. 99.

[97] Jean Hyppolite, *Logique et existence*, P.U.F., 1953, p. 28.

[98] Francesco Morandini, "Conditions de la communication philosophique", in *Actes du XI*ème *Congrès int. de phil.*, pp. 8—9.

3. THE VALUE OF KNOWLEDGE

The value of knowledge is truth, and the question of truth is always the same: is it possible that the subject meets an object that he did not create himself? The question could be answered only by *yes* and *no*. Those who said *no* reduced truth to conformity of some present sensory experience with a past sensory experience. "We do not know *which* objects are nature's but before *whose* consciousness they are"[99]. Those having said *yes* were compelled to admit that subject and object were of the same nature: material or ideal. And since the materialists of the centuries past did not succeed in getting beyond the ontological unity between subject and object up to the gnoseological contradiction between subject and object, the idealists exaggerated the conflict to such an extent that only religion would be called on to settle it. The act of discovering truth thus became an act of belief. "Agreement of thinking with things will have to bring us back to a more original 'convenience' of any existent with the Creator, to a match whose secret lies within the holy realm of Creation"[100].

But the "Creator" of the subject and object is not God, but matter. The subject is no more than an object whose work makes matter conscious of itself, the "secret" of the agreement between subject and object lying not within the "holy realm of creation" but in the normal self-development of matter.

If human truths had not been objective, mankind would not have gone all the way that links unchopped stones to artificial satellites.

Man's understanding of this world stays incomprehensible only for he who ignores the role that PRACTICE plays in the discovery of truth.

★

Through work people prove the truth of their knowledge. It is practice which ultimately checks out peoples' ideas. Through practice people confront their ideas *on* the objective reality with *that very* objective reality.

Practice, whereby people have their ideas verified, provided thinking the possibility to develop not only right ideas, but wrong ideas, as well. It is social practice that enabled human thinking to gain a relative independence of the environment and thus to reflect the essence of things and their laws of development. In social practice people have placed not only the tools between them and nature, but the work of the other people which they used, either through collaboration, or through exploitation. It is in

[99] Paul Ricœur, "Analyses et problèmes dans "Ideen II" de Husserl", in *Phénoménologie, Existence*, Armand Colin, Paris, 1953, p. 28.

[100] Henri Birault, "Existence et vérité, d'après Heidegger", in *Phénoménologie, Existence*, p. 151.

this way that the subject drew ever more widely apart from the object, thus enabling language and the logical forms of knowledge to occur.

With the emergence of logical forms of knowledge, thinking also occurs, viz., the spiritual activity whereby people join notions into judgments, judgments into reasonings and reasonings into poly-reasonings. The notions mirror the essences of things, judgments reflect the relations among them and reasonings try to deduce all the consequences deriving from already-known truths [101].

Thinking is an active mirror of objective reality. Practical activity governed the appearance of thinking, and theoretical activity constantly enhanced its relative independence to the world.

The active character of thinking makes it possible both for truth to be found and for errors to be made. The course of thinking down to the core of things does not observe a straight, but a spiralling line. Thinking is a contradictory process. "Error is a moment of truth in the making"[102], Roger Garaudy emphasizes. The coincidence of our ideas with objective laws is the outcome of a long and tedious process.

The contradictory behavior of things governs the contradictory character of their reflection, as well. Exaggeration of any of the moments in this process necessarily leads to an array of errors.

It is true that the laws of correct thinking that people obey spontaneously under the every-day pressure of practice mirror the most general objective laws and hence their observance ought to lead necessarily to knowledge of truth. But the active character of thinking also enabled separation of correct thinking, proceeding according to logical laws, from the true one which mirrors reality. Observance of logical laws is required to know the truth, but it does not suffice. Out of false premises, correct thinking can only perchance derive true conclusions. Our reasoning might be equally correct and false. In its *discursiveness*, thinking may be false and incorrect, or false alone. Whereas correctness does not imply truth, truth implies correctness. A true reasoning can only be correct. However, a correct reasoning may also be false. This does not in the least mean that false or incorrect reasoning can never lead to a true conclusion. Falseness implies truth, too, whereas truth implies only truth.

Practice alone can tell us if our ideas are true or not. When things behave according to our forecasts, our images stop being hypotheses and take

[101] Thinking is undoubtedly a property of matter that has reached its highest degree of organization, i.e. the organization level of the human brain. However, this definition refers to the *quality of* thinking, not to thinking itself. *Thinking* is a spiritual activity whereby people unravel unknown truths out of already known truths, according to the laws that reflect the most general objective laws.

[102] Roger Garaudy, *La théorie matérialiste de la connaissance*, Paris, 1953, p. 270.

their appropriate places among the other truths of science. He who can reproduce one thing, proves by this fact the rightness of his conception on the cause governing the appearance of that thing; "...if I can *produce* a post hoc, it becomes identical with *propter hoc*"[103], Engels notes.

No human action can secure to itself a lasting success if the objective laws of the things acted upon are disregarded. Only those actions proceeding in the light of some true idea are successful. The ideas *do not turn out* to be true because they have been successful, but they have been successful because they are true[104].

Practice can only confront people's ideas with the course of things. It can neither prove an error, nor disprove a truth. Pratice itself is governed by the nature of things it acts upon.

The role of social practice in the process of knowledge has lately impressed some non-dialectical researchers, too. "The study of the development of reason points to the close correlation between the establishment of logical operations and that of certain forms of collaboration"[105], Jean Piaget writes. He also believes that "logical operations stem from action and that transition from irreversible action to reversible operations is necesarily accompanied by socialization of action..."[106]; Piaget subtly notes that the irreversible actions on things are changed into reversible operations of logical thinking only under conditions of social co-operation. "Thinking is definitely the system of interiorized actions"[107], Piaget concludes elsewhere.

In the outlook of Jean Piaget, a notion mirrors the actions common to a human collectivity on a group of different objects. The universal and formal character of notions is determined by the fact that the practical actions they have derived from are applicable to all the things in the same class since they are independent of the individual nature of each separate thing.

"The moment the foundation of reason on a Platonic conception of universals or on the a priori structure of a transcendental subjectivity is given up, we can only identify the universal with the collective"[108], J. Piaget writes.

But the logical forms of thinking mirror the *essences and the laws of the development of things* on which people of a particular collectivity exercise

[103] F. Engels, *Dialectica naturii* (The Dialectics of Nature), p. 233.

[104] Truth is *no relation* of object to subject, but a property of ideas that the subject assumes about the object, born of, and made obvious in the subject-object relationship, i.e. in practice. Truths do not lie in this relation as pragmatists claim, they are only made *evident* through it.

[105] Jean Piaget, *Introduction à l'épistémologie génétique*, vol. III, Paris, 1950, p. 255.

[106] Jean Piaget, *Essai sur les transformations des opérations logiques*, Paris, 1952, p. 212.

[107] *Introduction à l'épistémologie génétique*, III, Paris, 1950, p. 256.

[108] *Ibid.*, p. 254.

their actions. According to Piaget, social practice no longer links people to their environment, on the contrary it isolated them. Plato's objective and metaphysical idealism and Kant's transcendental apriorism cannot be discarded through operationalism, which remains one of the aspects of subjective idealism whether we want it or not, but through dialectical materialism which, by revealing the rôle of practice in knowledge enables the objectivity of forms whereby the subject reflects the objects to be established. A full "definition of the object", Lenin writes, "should include the whole of human practice, both as criterion of truth and as practical determinative of man's relationship to what he needs"[109].

Thus Kant isolates the subject from the object. Kant, who does not suspect that practice links materially the subject to the object, continues to have a contemplative outlook of the object-to-subject correlation, and concludes "that the objects *per se* are entirely unknown to us and that what we call external things are but simple representations of our sensitivity the form of which is space"[110]. According to Kant, the act of knowledge does not bring the subject closer to the object, but it irrevocably drives it apart. The act of knowledge does not make the subject discover but cover the object, in Kant's opinion. "We", Kant writes, "can therefore speak of space, of beings endowed with extension, etc. only from man's standpoint... This predicate is ascribed to objects only because they appear to us, i.e. they are objects of our sensitivity"[111]. A few lines above he specified that "space is nothing else than ... the subjective condition of sensitivity..."[112].

Non-Euclidean geometries dealt a decisive blow to Kantian apriorism which considered that the propositions of Euclidean geometry were apodictic, because a priori.

It is true that the development of non-Euclidean geometries is one more peremptory proof that the Kantian solution is false. The insufficiency of this argument was reckoned even by opponents of transcendental apriorism. "Therefore", Mircea Florian writes, "spatial intuition is structured in an Euclidean manner according to Kantianism; real space can be only Euclidean. The objection was raised to Kantian apriorism that Euclidean geometry was not a podictic (a priori), because alongside of it, *non-Euclidean geometries* are also possible. Kantianism may answer that non-Euclidean geometries are variations of geometric axioms, and not of spatial intuition. That is why non-Euclidean geometries are not intuitive, they only make

[109] V. I. Lenin, *Încă o dată despre sindicate* (Once Again on Trade Unions) in *Despre construcția de partid* (On Party Construction), E.P.L.P., 1953, vol. II, pp. 224—225.

[110] Im. Kant, *op. cit.*, p. 69.

[111] *Ibid.*, p. 67.

[112] *Ibid.*

nominal reference to space. The space having more or less than three dimensions is outside the sphere of concrete representations[113]. Further on, the same author concludes: "The Kantian solution could be shattered if it were shown that within our spatial intention the shortest path between two points is not the straight line"[114].

However, Kantian apriorism is not shattered by the variations of some geometric axioms, but by the technical uses of non-Euclidean geometries, i.e. by the proof that our senses are not unsurpassable, since reason is able to discover objective properties of space that have never been intuited by people.

If the objective existence of some geometric properties that human senses did not perceive can be proved experimentally by relying on our senses alone, we at the same time prove that the specific structure of our intuition is no unsurmountable limit to knowledge.

Thinking could understand what the senses failed to identify; Euclidean space is but a particular limiting case of non-Euclidean space. But thinking has discovered non-Euclidean geometries starting from the data provided by the senses and has proved their objective validity reverting to sensory data.

Kantian apriorism can be overthrown forever only if both the practical and theoretical activities of people are taken into account.

Kantian apriorism lost its prestige quite soon, also, due to the logical contradiction underlying it. The judgment: "the thing *in se* is incognizable" is a contradiction *in adjecto*. If it is known that the thing *in se* exists independently of men's consciousness, and that it is quite different from what it appears to people, that means that a bit too much is known of what is claimed to be incognizable!... *The incognizable cannot be but its own predicate*. Nothing can be asserted on that about which you can know nothing. Only the incognizable can be said to be incognizable...

Equally contradictory is the attempt to draw the boundary between cognizable and incognizable. If such a boundary were set, both its sides should be known. Hence, he who deals with the limits to knowledge, also knows the incognizable!...

No wonder that non-Marxist scientists today, who do not acknowledge dialectical materialism and objective idealism or mechanistic materialism either, have abandoned Kant's transcendental apriorism for the con-

[113] M. Florian, *Kant și criticismul pînă la Fichte* (Kant and Criticism up to Fichte), București, 1937, p. 81.

[114] *Ibid.*, p. 52. As a matter of fact, it is not impossible to intuit that, on a pseudosphere, the shortest path between two points is not the straight line but the curved one. With some effort, non-Euclidean spaces can also be intuited. Guided by reason, human sensitivity also develops uninterruptedly.

ventional apriorism of logical positivism. Most of them were attracted by the philosophic slogan of Ludwig Wittgenstein : "Let us not speak of the unspeakable!"[115].

"They (scientific methods) will never be able to describe nature *in se*, they will describe our observations of nature"[116], the English physicist James Jeans writes. By placing the existence of the object between brackets, the supporters of positivism reduce all of reality to the life of the subject. "Our life", the Greek philosopher Ch. Theodoris states, "is an uninterrupted experience which is not, as it was said, the source of our knowledge; it identifies itself with our very knowledge, with every scientific abstraction and theory"[117]. Being convinced that the object cannot be thought of, it is all but natural that Guido Ghersi comes to assert that: "...we, modern philosophers, cannot, nor are we supposed to distinguish... between the act of thinking and what is thought"[118]. In a similar world outlook, truth can no longer be the acquisition of those ideas mirroring reality. It is not the agreement of ideas with reality that is decisive, as far as the validity of an explanation is conceived, but the agreement between present and past perceptions. "Therefore, valid truth will be defined only as the agreement of present reality with our memories of a similar past reality"[119]. If Louis Rougier were right when saying that "thinking can never outdo experience, that it can never deduce the existence of things *in se*, separate ideas, essences, subjacent, immanent or transcendent quiddities from sensitive appearances"[120], then the satisfaction that Herman Meyer takes in saying, that "the method identifying eternal truths with logical and mathematical theses, was a master's blow breaking the Aristotelian crust that had hindered the natural sciences for two thousand years"[121], would be justified.

Actually, if empirical judgments can be at most *total* and never *universal*, then universal judgments can be only *linguistic conventions*. Like propositions are true provided they do not contradict the arbitrarily chosen axioms they derive from. They do not refer to any reality which, it is claimed, nothing can be said of, not even that it does *not* exist.

[115] I. Wittgenstein, *Tractatus logico-philosophicus*, London, 1922, p. 188.

[116] Sir James Jeans, *op. cit.*, 1954, p. 29.

[117] Ch. Theodoridis, "Le drame sujet-objet", in *Actes du XI^ème Congrès international de philosophie*", vol. II, p. 210.

[118] Guido Ghersi, "La signification, essence de la pensée", in *Actes du XI^ème Congrès int. de philosophie*, p. 22.

[119] David Andréani, "Vérité et vérité collective actuellement valable", in *Actes du XI^ème Congrès...*, vol. II, p. 126.

[120] Louis Rougier, "La scolastique et la logique", in *Erkenntnis*, 1934, p. 106.

[121] Herman Meyer, "Les jugements singuliers dans l'explication de la nature", in *Actes du XI^ème Congrès...*, vol. IV, p. 43.

"It does not matter, then", Andrea Galimberti writes, "whether you take linguistic intelligence as subject or as object; in language, thinking reaches that pure formality where these distinctions no longer matter"[122]. Galimberti realized the role played by language in the constitution of the forms of thinking. "Language", he writes, "relieves imagination, henceforth no longer connected to the concrete circumstances that the thinking subject lives in; but in so doing, language succeeds in setting the very thinking free"[123]. But Galimberti looks upon "setting thinking free" not as a necessary condition in reflecting the essence of things and their essential interrelations, but as a final severance between thinking and reality. By "setting thinking free" Galimberti understands much as Kant's pigeon does by setting itself free from the surrounding air sustaining its flight...[124] Isolated from sensitivity and, by this very fact, from the external world, thinking degenerates into an arbitrarily chosen system of linguistic symbols, which, somehow, helps people organize their sensory experience.

Many of the researchers who have understood the thinking-language unity, disregarded the primordially gnoseological character of thinking against language and reversed the correlation at the expense of thinking. "Therefore, the thinker's contact with reality is mediated; it is established through the language he speaks, the structure of which imposes on him certain categories of thinking which are already an interpretation"[125], the Romanian philosopher Aram M. Frenkian writes. Further on, the same author specifies: "Just as in ancient times the pattern of the Greek language made Aristotle place *substance* as an ultimate reality, which to him was the logical and real cause of its attributes and predicates, so the pattern of the mathematical expression at his disposal makes the modern scholar ascribe reality only to mathematically expressed relations"[126].

But then, is it not more natural to think that Aristotle's language, where the subject was the privileged category with attributes and predicates clustering round, is governed by the fact that thinking in its history first came to know the *self-relations* among things and their features and states, whereas mathematical language, where figures are equally placed one after another as the ending-frame of Indo-European languages is crushed, is governed by the fact that thinking, under different historical conditions, has also succeeded in knowing the *heterorelations* among the various things, as well?...

[122] Andrea Galimberti, "L'analyse linguistique de la représentation", in *Actes du XI^ème Congrès...*, vol. V, p. 144.

[123] *Ibid.*, p. 141.

[124] Im. Kant, *Critica rațiunii pure* (Critique of Pure Reason), p. 43.

[125] Aram M. Frenkian, *Etudes de philosophie présocratique*, II, Paris, 1937, p. 13.

[126] *Ibid.*, pp. 42—43.

Chrysippus' logic did not enjoy as much success as Aristotle's; and that was not because it developed an outlook alien to the spirit of the Greek language, overlooking the ending between subject and its attributive predicates, whereby self-relations were expressed, but because it was premature, because investigation of relations was not topical in Antiquity yet[127]. André Darbon, too, remarks that "...science has shifted from the period of adjectives to that of numbers..."[128]. The supporters of positivism who forbid the investigation of the qualitative side of things advance that philosophy should be concerned with shaping the tool that could help people measure the quantitative side of things, the only one they contact unmediatedly in their experience.

The propositions of the various sciences could refer only to the relations of coexistence and succession among individual things[129], disprovable any time by a subsequent experience; the propositions of philosophy set the rules for handling the symbols by means of which propositions are built in science. The former are usually called empirical or synthetic and are looked upon as contingent alone; the latter are called logical, analytical or tautological and are considered the only necessary propositions, sure, in the sense of conventionalism. "...according to this conception", Hans Reichenbach writes, "science no longer has the task of finding true propositions, but only to look for those propositions that are most favorable to predict the future. It can be shown that according to this outlook, the principle of induction is also reductible to a tautology"[130]. According to positivists, empirical universal propositions can never be necessarily true. They can be at most false. "Induction", Edm. Goblot writes, "is the art of questioning nature. [The hypothesis is the question asked...] A well set question is one that nature can ask. It never answers otherwise than no. The fact favorable to the hypothesis is not an affirmative answer of nature, it is the absence of a negative answer: research may go on..."[131]. An exceptional, necessarily true proposition is universal. But positivists do not admit the possibility of universal empirical judgments, since a like judgment can be disproved by one single unfavorable fact, and it can only be proved by all the favorable facts referred to it, which is impossible.

[127] *Ibid.*, p. 26.

[128] André Darbon, *La philosophie des mathématiques*, P.U.F., 1949, p. 10. "The size we appraise is not that of an object, but of a relation", Darbon further notes (*op. cit.*, p. 20).

[129] By "individual things" positivists mean "complexes of sensations".

[130] Hans Reichenbach, *Actes du Congrès international de philosophie scientifique*, Paris, 1935, I, p. 34.

[131] Edmond Goblot, *Traité de logique*, Armand Colin, Paris, 1941, p. 296.

"Traditional opinion", Bertrand Russell writes, "requires that the very universe should be the subject of various predicates inapplicable to any particular thing in the universe, so that this very determination of the predicates of the universe is the very object of philosophy. I, on the contrary, hold that there are no such propositions to have the 'universe' as subject; in other words, that 'the universe' does not exist"[132].

By giving up the investigation of the qualitative side of things, present-day positivism has given up the notion of *feature* for the notion of *relation*; it has substituted the notion of function for the notion of cause; it has replaced Aristotle's attributive logic by the logic of relations. "Classical logic is the logic of quality, mathematics is the logic of quantity"[133], A. Darbon writes. The supporters of logical empiricism wholly reject attributive logic in favor of mathematical logic by unlawfully converting the judgment: "Scholastic logic is an attributive logic". "To Scholastics", L. Rougier writes, "who ignore that the copula is a grammatical category deprived of logical significance, the universe is a set of substances that science has to define, classify and hierarchize"[134]. With positivists, the universe is an endless sensitive net of relations without relates. Ether, electric and magnetic forces, atoms and electrons are "mere trifles used by physicists to adorn mathematical symbols"[135], James Jeans claims.

If sensations cannot actually obtain any information on what exists beyond them, then we can know nothing but our own sensations; we can make only the inventory of the spatial forms and relations of succession among things — sets of sensations that "we have been used to call objects", because of our common language, full of substantialist prejudice; under like circumstances the theory of knowledge can be no more than a tautological theory of the symbols handled in organizing sensory experience. It is all but natural, then, that positivist epistemologists who have reduced philosophy to the theory of knowledge now restrict the theory of knowledge to logic, logic to grammar, and grammar to algebra.

As long as the determinism of things has been investigated, a logic of quality was required; since the determinism of the sets of things has been primarily investigated, a logic of quantity is needed. Statistical laws have obscured dynamic laws in the concerns of most scientists. "The authentic

[132] Bertrand Russell, *Le mysticisme et la logique*, Payot, Paris, 1922, p. 96.

[133] A. Darbon, *op. cit.*, p. 7. Victor Broachard makes a similar remark: "Logic... is the mathematics of quality", at the same time suggesting that mathematics is the logic of quantity (*Etudes de philosophie ancienne et de philosophie moderne*, Paris, Vrin, 1926, p. 427).

[134] L. Rougier, *op. cit.*, p. 101.

[135] Sir James Jeans, *op. cit.*, p. 30.

language of logic is an algebra"[136], R. Bayer asserts, and logic is to him "the moralities of speech"[137].

As a matter of fact, if the senses can derive no information whatsoever of what is independent of them, then the notions are nothing else than symbols, and logic the way of using them.

But, is it true that the senses can tell us nothing of objective reality, that reason does not discover objective rules but devises rules of conduct instead?... Practice itself is nothing but a succession of sensory sets, positivists hold; what stays unclear, however, is the irrefutable fact that through the very senses claimed by positivists to be fully impervious to objective reality, our ideas are not always *proved*, but, often, *disproved*. But, then, the difference between proof and disproof, is it not tantamount to the difference between truth and error? ... It obviously is!...

It is not the subjective *form* of ideas that is confronted with objective reality through practice. Practice can prove or disprove only the *substance* of ideas. A truth is an idea which, by its substance, reflects an objective fact existing independently of it[138]. As a matter of fact, by the substance of the ideas reflecting it, reality determines even their logical form.

Color, for instance, is a subjective form of sensitivity whereby people reflect a particular light wave-length, existing objectively.

The subjective character of forms whereby people mirror the respective laws of nature and society is governed by both the anatomo-physiological structure of their organism, and the historical level of the material and spiritual means of investigation. The essential relations among things are not accessible to the senses. But not all that is not seen is invisible. What is not seen here may be seen elsewhere; what is not seen now, may be seen some other time, what is not seen with the eye, can be seen under the microscope.

The *finite* forms of knowledge cannot but gradually reflect the *infinite* forms of reality. Men cannot know the world at once, fully and forever. *Infinite* is the object of knowledge, and *infinite* also is knowledge of the object. The history of knowledge is the history of the struggle between *every man's limited knowledge and the unlimited possibilities of human*

[136] Raymond Bayer, *Epistémologie et logique depuis Kant jusqu'à nos jours*, P.U.F., 1954, p. 331.

[137] *Ibid.*, p. 302.

[138] The ideas on social life and value judgments are no exception either. Lucien Goldmann is wrong to state that "when thinking is concerned with historical and social life... statements are not, but become, true of false through man's actions" ("Remarques sur la théorie de la connaissance", in *Actes du XI^ème Congrès*..., vol. II, p. 93). A value judgment mirrors at the same time an objective fact and its agreement with the objective laws of social development.

knowledge. The contradiction between the infinite character of the world and the finite character of knowledge is extended by the contradiction between the finite character of knowledge and the infinite character of human knowledge.

Knowledge of the infinite passes through the infinite array of finite knowledge. Absolute truth is being construed out of the infinite quantitative accumulation of relative truths. Between absolute truth and relative truths there is no *eternal* boundary, but there is a boundary *eternally* that is overstepped *eternally*.

Absolute truth *is* not, it *becomes*. That is why it cannot be known by sudden revelation; it can be revealed only through gradual knowledge.

Therefore, absolute truth can be only incessantly known. But then, isn't this assertion tantamount to the assertion that absolute truth cannot be known? It is not, since knowledge, in its progress, does not come across any transcendent[139] or transcendental barrier, the former being set by objective idealism and the latter by subjective idealism. Inexhaustibility of knowledge is governed by inexhaustibility of the world it reflects. Absolute truth *can be* known, but its knowledge is infinite.

Knowledge rises from the sensory reflection of things to the logical reflection of their distinctive essential characteristics, striving afterwards to mirror *all* their essential characteristics, *their essence*. Through induction, knowledge rises from the real concrete to logical abstractions, while through deduction it rises from logical abstractions to the logical concrete. The logical concrete coincides with absolute truth. The logical concrete is the outcome of the accumulation of an endless array of abstractions. Only absolute truth is concrete. Relative truths cannot but be ever *more* concrete. Concretization of abstractions is an endless logical process. Thinking steadily rises to the logical concrete. 17th and 18th century mechanistic atomistics that mirrored the mechanical properties of atoms was sensibly more concrete than the philosophical atomistics of Antiquity to which the existence of atoms was a mere hypothesis. Likewise, 18th and 19th century chemical atomistics, by discovering the chemical characteristics of atoms made our knowledge of atoms become still more concrete. Finally, 20th century physical atomistics, by discovering microparticles and revealing the contradictory unity between the continuity and discontinuity of matter considerably enhanced the concrete character of our outlook on the physical world.

[139] "Through transcendent censorship purposely and for higher reasons set in-between the mysteries of existence and individuated knowledge, the latter is denied any positively adequate coverage of existential mysteries", Lucian Blaga writes (*Trilogia cunoașterii* (The Trilogy of Knowledge), București, 1943, p. 332). "Denied by Heaven", Blaga concludes, "the scientist gastropodously sticks to the land he moves on" (*op. cit.*, p. 317).

Having succeeded to mirror the distinctive essential features of things, thinking discovers their interrelations and opens the path to an ever more concrete reflection of objective reality.

The relativity of knowledge is governed not only by its subjective form alone, but also by its objective substance. The world is not only infinite and eternal, but also perpetually renewing. Knowledge is not relative on account of the principal incognoscibility of the world, but on account of its discursive cognoscibility. The incompleteness and inaccuracy of our knowledge should not be confused with its lack of objectivity...!

The enthymeme which, in most cases, underlies relativism is the following: "No idea has the value of objective truth as it is not absolute". Re-constitution of the whole syllogism that this enthymeme derives from reveals the pseudo-identification of objective truth with absolute truth.

The school of Copenhagen, that tried to interpret the corpuscular-undulatory dialectical characteristics of the micro-object by means of corpuscular metaphysical notions came upon the uncontrollability of the dialectics of the micro-object and concluded that quantum mechanics was no theory of reality, but a theory of... knowledge.

Whoever mistakes the question of the accuracy and relativity of our knowledge for that of its source turns aside from the upward path to absolute truth, gets buried in relativism and subjectivism.

*

Dogmatism and skepticism are equally false for they both start from absolutizing relative truth.

It is obvious that, whereas dogmatism denies practice's capacity to disprove a belief, skepticism denies practice's capacity to prove an idea; dogmatism only grants practice the right to prove it, skepticism only allows it to disprove it.

Relativity of truths does not nullify their objectivity or their partially absolute character either, as long as absolute truth is steadily being construed by accumulating relative truths.

There are anti-Marxists today blaming some Marxists for having a pragmatist-dogmatic eclectic outlook on truth. When Marxists theorize their practice, they are accused of pragmatism by anti-Marxists and when proceeding to put to practice these theories, they are accused of dogmatism. Anti-Marxists try to hide the dialectical unity between practice and theory under the insulting label of "eclectism".

As a matter of fact, Marxist-Leninists are equally anti-dogmatic and anti-pragmatic. Henceforth, their guiding star will be the dialectical unity between theory and practice, which rejects either one-sideness.

Man is man's only goal according to the Marxist world outlook. Men should be used only to their benefit. Knowledge is a means. Its goal is practice. Men strive for knowledge to be able to make their environment suit human needs. To know is to foresee and to foresee is to be able to tame the forces of nature and society. It is through knowledge that men humanize nature. People struggle for knowledge to place the world at their disposal. Therefore, practice is not confined to *pushing* knowledge forward, as cause entails its effect, it also *draws it forward* in its capacity as a goal. The need felt by people to be able to act efficiently on the course of *all* things of the same kind without knowing *each separate* individual thing belonging to that kind, also contributed to raising knowledge from the sensory onto its logical stage. The need for mastering not only the *real*, but also the *possible*, not only all the things of the same kind, but also every possible thing of that same kind, drew human knowledge forward with the same strength it had pushed it before to change the *various* things of the same *kind*.

He who ignores the dialectical unity between theory and practice also ignores the true goal of knowledge. Some even ascribe no goal to knowledge. "... To arrive is less than to set out hopefully"[140], James Jeans writes when referring to the effort for knowledge. Others reduce the goal of knowledge to that of a guidebook. "What is essential", William James claims, "is to find in an idea a guide to move amidst realities"[141].

There are some who believe that thinking was born out of man's need to dissimulate their intentions. "Generally", Constantin Georgiade writes, "when man thinks, he performs mentally and secures from any indiscretion what he is going to do. Thinking is a psychological act of precaution, of thoughtfulness"[142].

Most are of opinion that to know is to be able to anticipate what will happen to you. "Why do we build systems, after all?", A. J. Ayer asks himself. And he provides the answer: "The answer is that they enable us to anticipate the course of our sensations"[143]. The tremendous human capacity of adjusting the world to human needs is in this way reduced to a simple zoological adaptation to environment.

[140] Sir James Jeans, *op. cit.*, p. 234.

[141] William James, *Le pragmatisme*, Ernest Flammarion, Paris, 1918, p. 195.

[142] C. Georgiade, *Originile magice ale minciunii şi geneza gîndirii* (The Magic Origins of Lie and the Birth of Thinking), Bucureşti, 1938, p. 202.

[143] A. J. Ayer, *op. cit.*, p. 136.

But the fact that practice is the goal of knowledge does not require scientists to solve the problems raised by practice alone. "On the contrary, striving to know the world is precisely the surest means to fertilize action. No doubt that the best policy from the standpoint of technical usefulness is to favor the purest and most disinterested research"[144], the great French Marxist scholar Paul Langevin writes. The theory is generalized practice, and practice is applied theory. Ideas can change the world only through social practice, and social practice cannot change the world unless it is guided by true ideas.

Practice is therefore the trigger, the motive force, the criterion and goal of knowledge. Practice is the nodal point of knowledge[145].

[144] Paul Langevin, *La pensée et l'action*, Paris, 1950, p. 138.

[145] Upon examining the dialectics of the forms of knowledge, the following gnoseological laws could be inferred thereof: the contradiction between the objective character of things and the subjective character of the forms reflecting them, the qualitative leap from the sensory to the rational, the contradiction between the unlimited possibilities of knowledge and the limited possibilities of what is known, which leads to a steadily concretizing character of thinking.

V. THE OBJECT OF MATERIALIST-DIALECTICAL LOGIC

1. DIALECTICAL METHOD AND DIALECTICAL LOGIC

Science is science as long as it has a specific research object of its own. Any science is defined by its object of study and the research object of any science is the developmental laws of a particular field of existence.

The question of logical dialectics as a comparatively independent philosophical discipline may be answered in the affirmative only by discovering the laws of dialectical logic, of the developmental laws specific to dialectical thinking.

Lenin's remark on the identity of dialectics, gnoseology and logic in Marxist philosophy does not allow us to wipe out all differences between the dialectical method and dialectical logic. On the contrary, it helps us understand that dialectical logic is but materialist dialectics as logic, as a science of the most essential laws of development of logical thinking.

Nevertheless, there are some Marxist-Leninist logicians who, setting out from the belief that formal logic is the only science dealing with the forms and laws of correct thinking, continue to refute the existence of a dialectical logic in materialist-dialectical philosophy.

"The consistency of thinking, the right correlation of ideas, the rules, the laws of the right correlation of ideas, i.e. of the correlation and interrelation of judgments, of the correlation between premises and consequences—that is the object of formal logic and there is no other science to deal with it", the Soviet logician K. Bakradze writes [1].

In his opinion "Dialectical logic is the method of knowing reality, the theory of knowledge, and not the science of the laws of correct thinking..." [2]. K. Bakradze concludes that "... by the notion of dialectical logic one generally means the Marxist dialectical method..." [3]. According to Bakradze, materialist dialectics is not concerned with the laws and forms of correct thinking at all, it is only confined to interpreting in a materialist-dialectical way the principles and rules discovered by formal logic.

[1] K. Bakradze, *Voprosy filosofii*, no. 2, 1956, p. 272.
[2] *Ibid.*, p. 274.
[3] *Ibid.*, p. 275.

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"The study of the principles of correct thinking from the standpoint of dialectical materialism", Bakradze writes, "does not convert formal logic to dialectical logic..." [4]. Another Soviet logician, N. Kondakov, in an attempt to stress the uselessness of a dialectical logic, asks himself: "But is dialectics not reflected in the law of sufficient reason, which requires that 'any true idea be founded', i.e. derive from another idea, be correlated to other ideas?" [5]

Those holding that formal logic is the only science dealing with the forms and laws of correct thinking — materialist dialectics, in their opinion, being only the method for investigating objective reality, the objective substance of logical forms — are wrong, since they identify the dialectical method with dialectical logic.

Dialectical logic does exist and, like formal logic, it, too, undertakes to study logical laws, whereby correct thinking joins the logical forms in order to reflect reality correctly. Like formal logic, again, dialectical logic stays indifferent to the concrete substance that one or another logical form may reflect. But, like formal logic interpreted in a materialist-dialectical way, dialectical logic is also concerned gnoseologically with the general substance reflected in the logical forms and laws.

The objective reality mirrored by logical forms is dealt with by ontology; the correlation of this objective reality to logical forms is the object of gnoseology and the relationships among the various logical forms are investigated by logic.

However, even the philosophers who acknowledged dialectical logic as such did not strive to make a clear-cut differentiation between dialectical logic and the dialectical method. They dwelt more on the identity between the dialectical method and dialectical logic, rather than on the difference between them. "One might say that by such an interpretation, dialectical logic coincides with what we call dialectical method. And that is quite correct" [6] the Soviet philosopher M. M. Rosenthal writes in an article, stating the necessity for setting up dialectical logic. A similar point of view can be found in a quite interesting study by another Soviet philosopher, E. P. Sitkovski. After asserting that: "Materialist-dialectical logic is the science of the laws of human thinking which are the reflection of the laws of the objective material world" [7], the author concludes that:

[4] *Ibid.*, p. 274.

[5] N. Kondakov, *Voprosy filosofii*, no. 2, 1956, p. 284.

[6] M. M. Rosenthal, "V. I. Lenin on the Tasks and Principles of Developing Dialectical Logic", in *Voprosy filosofii*, no. 2, 1955, p. 48.

[7] E. P. Sitkovski, "Lenin on Dialectics, Logic and Theory of Knowledge Overlapping in Dialectical Materialism", in *Voprosy Filosofii*, no. 2, 1956, p. 97.

"Materialist-dialectical logic is the logic of living substance, the logic of motion, of development, of living life" [8].

Even though he reaches the conclusion that: "Dialectical logic (is) the science of the laws of thinking and of the laws of the forms of thinking developed by means of the dialectical method" [9], the Hungarian logician Fogarasi Béla is still of the opinion that, unlike formal logic, dialectical logic and the theory of knowledge overlap [10].

There is no doubt that, by succeeding in reflecting the most general and basic developmental laws of nature, society, knowledge, and thinking, materialist dialectics is by this very fact the only general scientific research and transformation method of nature and society, the only method for studying and guiding knowledge and thinking. But materialist dialectics is no undistinguished and undifferentiated mass. Materialist dialectics subsumes ontology, gnoseology and the logic of dialectical materialism.

Ontology deals with the most general laws of development of nature and society; gnoseology studies the most general laws of the development of knowledge, and logic is concerned with the most general laws of development of correct thinking.

As already known, the most general laws of development of nature are the laws of the unity of contraries and of internal contradiction, the law of the transformation of quantitative changes into qualitative changes, and the law of the negation of the negation. The first governs the self-development of things, the second the way things self-develop — and the third governs the spiralling path covered by the self-development of things. Society — a form of motion of matter at the level where the knowledgeable and transforming subject appears, knowledge — whereby nature and society are reflected by the subject — and thinking — whereby the laws of nature, society, knowledge and thinking itself are discovered by the subject, develop according to the same laws. The laws of society, knoowedge and thinking are as many specific forms of manifestation of the laws of nature [11]. As an inherent part of nature, society cannot develop according to other laws, and knowledge of nature and society cannot but observe the same laws.

In dialectical materialism, ontology is the general science of the object, with gnoseology and logic making up the general sciences of the subjective

[8] *Ibid.*, p. 105.

[9] Fogarasi Béla, *Logik*, Berlin, p. 25.

[10] *Ibid.*, p. 22.

[11] The question was raised at times why society lies within the scope of philosophy, whereas, say, living matter, is the object of individual sciences. Maybe this is because any man should become acquainted with social laws to most efficaciously take part in the progress of the society he works in.

reflection of the object and of the practical transformation of the object by the subject. Since the dialectical laws of the object necessarily govern the dialectical laws of the reflection of the object by the subject, within materialist dialectics, ontology is primordial to gnoseology and logic, and its laws thus become the fundamental laws of materialist dialectics in general. The primordial character of ontology vs. gnoseology and logic explains why the ontology of dialectical materialism is commonly confused with materialist dialectics taken as a whole.

However, knowledge has its own specific laws, which are studied by gnoseology. The ontic law of the unity of contraries and of the internal contradiction is manifest in the process of knowledge as a number of contradictions: the contradiction between existence and consciousness, between the unity of the whole sensory body and the qualitative diversity of the senses, between the passive reception of the external world and its active transformation, between the objectivity of the substance reflected and the subjectivity of the reflecting form, between the unlimited possibilities of knowledge and the actual limits of knowledge. The other dialectical laws of the object become manifest in the process of knowledge through the law of the qualitative transformation of the sensory concrete into a rational abstract and of the latter into a logical concrete.

Logical thinking, too, has its own laws that logic undertakes to study. In the course of correct thinking, the laws of development of the object assume the form of the logical laws of dialectical thinking: the law of contradictory predication, of determinate negation and of the double negation[12].

The laws of logical thinking mirror the most general objective laws. The most general objective laws were retained by human thinking as logical laws in the multimillennia process of the socio-historical practice of mankind.

The same as the objective laws which can neither be created, suspended or altered, logical laws cannot be created, suspended or altered either. Both objective and logical laws are necessary relations. The former are necessary relations among the various stages of the same kind or among various things, the latter are necessary relations among the various logical forms of thinking. The same as the action of some objective laws can be removed only by doing away with those phenomena whose development is governed by those laws, so the action of some logical laws can be removed

[12] The first attempt to formulate the specific character of the laws of dialectical thinking is due to Ath. Joja who, in two successive papers delivered at the Romanian Academy in 1955, formulated them symmetrically to the laws of formal logic: the law of concrete identity, of complex contradictory predication and of the supervenient third. The present study can retain and dwell only on the second one, since, in the author's opinion, it includes the other two as well.

only by doing away with correct thinking. The only difference is that in the former case, objective action is required as things are involved, whereas in the latter, where thoughts are concerned, our spiritual, subjective action — whether spontaneous, unintentional or purposive, intentional — is enough. Unintentional action leads to paralogisms, the intentional one breeds sophism. Logic teaches us to avoid the former and discover the latter all while rejecting them.

The relative independence of our thinking towards objective reality — a natural outcome of the active character of thinking — gives us the possibility of making both true and false judgments. By discovering and formulating the laws of correct thinking — whose non-observance nullifies the right reflection of reality — logic provides the rules that thinking must obey in order to avoid errors, thus enabling us to raise the spontaneous correctness normally maintained by everyday practice to the higher level of conscious correctness. Therefore, logical laws are the rules of correct thinking since they are laws of correct thinking above all. Logic is no "policing of thinking"[13], no "Criminal Code of Reason" [14] and no discipline dealing with "the possibility of linking sentences by means of logical particles..." [15]; it is a philosophical discipline whose normative value stems from its very scientific value.

There are two sections of laws of correct thinking, and, hence, there are two logics to study in succession the two kinds of logical laws.

The objective dialectical unity between essence and phenomenon, necessity and chance, general and individual, etc., governs, in the course of social-historical practice, the subjective dialectical unity of the two stages of knowledge: the sensory and the rational. The dialectical unity of the two contradictory sides of objective reality can be known only through the dialectical unity of the two contradictory stages of the knowledge of objective reality. The sensory reflects the phenomenal, accidental, individual side of things; the rational reflects the essential, necessary, general one. In the course of practical activity, the dialectics of the object of knowledge governs the dialectics of knowledge of the object.

But the dialectical structure of things governs their uninterrupted self-motion. While self-developing, things preserve their quality, their identity within two nodal points. The objective dialectical unity between the relative stability of things and their absolute self-motion, between the relatively stable identity of things and their absolute self-differentiation governs,

[13] A. Wernicke, *Mathematische und philosophische Propädeutik*, Berlin, 1912, p. 58.

[14] Fr. Gonseth, "La logique en tant que physique de l'objet quelconque" in *Actes du Congrès international de philosophie scientifique*, vol. VI, p. 18.

[15] A. J. Ayer, *op. cit.*, p. III.

also through practice, the subjective dialectical unity of the two moments of reason: the elementary and the dialectical.

The well-known psychologist Jean Piaget is also definitely aware of the decisive role of practice in the development of logical operations. He emphasizes the social character of practical activity generating logical and mathematical operations. "The development of logic with children", Piaget writes, "brings into relief two essential facts: that logical operations are rooted in action and that the transition from irreversible action to reversible operations is necessarily accompanied by socialization of actions from egocentrism to cooperation" [16].

According to Jean Piaget, the universal validity and the formal character of notions and of logical and mathematical operations is accounted for by their being the outcome of abstracting some actions, and not some objects; they are the outcome of practical operations independent of the specific nature of certain things and hence they can be applied to all the things. Operationalist positivism prevents Piaget from seeing that logical laws are the outcome of the abstraction of some *real relations* manifest in the practical action of changing objects, not only of some practical actions alone[17].

In this way the most elementary objective laws have crystallized out in logical thinking as the elementary laws of correct thinking: the law of identity, of non-contradiction, of the excluded middle, and of sufficient reason. The most essential objective laws have crystallized in correct thinking as the dialectical laws of logical thinking: the law of contradictory predication, of determinate negation and of the double negation. The former mirror the objective laws of the relative stability of things, the latter reflect the objective laws of the self-motion of things. The former are dealt with by elementary logic, commonly referred to as formal, classic, Aristotelian, and the latter are tackled by dialectical logic.

Therefore, it is not the objective laws but the subjective laws of the rational reflection of objective laws that logic is concerned with. It is true that the objective laws and the logical laws coincide essentially. Were

[16] J. Piaget, *Introduction à l'épistémologie génétique*, III, Paris, 1950, p. 256. The differentiation made by Piaget between practical actions which are irreversible and logical operations which are reversible is worth mentioning. As a matter of fact, the former are individual, and the latter, general.

[17] While departing form semantic positivism, Piaget is still a positivist. "Therefore", he writes, "if we disregard the uncheckable hypothesis of a correspondence between logical laws and absolute truth, only two possible interpretations are left: either pure conventionalism (but in that case co-ordination between logistic and physical facts becomes very delicate since physics is not only a set of statements made by means of conventional 'syntax': it is largely the outcome of operations as such) or a correlation with the actual mechanisms of thinking". (J. Piaget, *Essai sur les transformations des opérations logiques*, Paris, 1952, p. XI).

they not coincident, people would be unable to tame the natural and societal forces[18]. But whereas the objective laws are independent of human thinking, the laws of correct thinking appeared concomitantly with the emergence of logical thinking, and the discovery and formulation of these laws by the science of logic is a process that is still to be noticed today.

The combination of logical forms according to the elementary laws of correct thinking proceeds spontaneously, stemming from the necessity of knowing everyday life. The combination of logical forms according to the dialectical laws of correct thinking proceeds only under the impact of scientific knowledge which has discovered the most essential objective laws[19].

As the discovery of logical laws mirroring the objective laws of the relative stability of things did not run counter the interest of any social class, and as it could more easily be completed because of the elementary character of those laws, elementary logic dealing with them was set up some two and a half millenium before dialectical logic. As the discovery of the logical laws mirroring the objective laws of the self-development of things runs counter the interests of the exploiting classes and as it is more difficult because of the more comprehensive character of these laws, the science undertaking their study — dialectical logic — has even nowadays faced the fierce opposition of non-dialectical philosophers. Even those philosophers that came to be confronted with the dialectical laws of logical thinking stepped back, shocked at the idea that privileges are but temporary. Zeno of Elea remains the most famous of them.

As I. M. Bochenski thought he had discovered a logical contradiction in the Marxist outlook on the correlation between scientific truth and the working people's interest, he writes: "Theory seems to come to a contradiction: since truth is governed by our needs, then knowledge cannot even partly be a replica of reality"[20].

[18] "... The laws of thinking are the laws of existence that have reached consciousness and, hence, thinking does in no way hamper existence, it sets it free", A. I. Herzen writes (A. I. Herzen, *Textes philosophiques choisis*, p. 128).

[19] Dialectical thinking is involved whenever the scientist approaches the fundamental laws and categories of his field of research. Then, under the impact of broadening "household" practice through scientific experiment, elementary thinking is transcended and the researcher is made to think dialectically by his own discovery, without having appropriated dialectical logic.

[20] I. M. Bochenski, *La philosophie contemporaine en Europe*, Payot, Paris, 1951, p. 67.

He hastily overlooks both that not all kinds of "needs" coincide with the course of history and the equally irrefutable fact that those needs required by social development do not "govern" truth; they only facilitate its discovery.

2. ELEMENTARY LOGIC AND DIALECTICAL LOGIC

The correlation between elementary logic and dialectical logic has already been foreseen by Kant. "Our entire knowledge originates in the senses, therefrom proceeding to the intellect to end up in reason, for there is nothing in us beyond it to process the intuitive matter and bring it to the highest unity of thinking", Kant writes [21]. But Kant believes that elementary thinking organizes phenomena and dialectical thinking organizes elementary thinking. "If the intellect", Kant writes, "is a faculty of the unity of phenomena by means of rules, then reason is the faculty of the unity of the rules of the intellect under 'principles'" [22].

Because of his agnostic apriorism, Kant could not admit that reason goes deeper than the intellect in its knowledge of reality, and granted reason only the ability to complete the organization of phenomena already started by the intellect until it has reached the antinomies that it is, itself, unable to solve.

The first to state explicitly the question of the correlation between elementary logic and dialectical logic and solve it, in the last analysis, to the detriment of the former is Hegel. Taking up Kant's idea, Hegel specifies: "Thinking producing only finite determinations and moving within them is called intellect" [23].

Although Hegel often eulogizes Aristotle, he does not grant scientific validity to elementary logic. "Consequently", he writes, "the identity proposition is stated as follows: 'Anything is identical with itself'. A = A; and in the negative: A cannot be A and not be A at the same time. This proposition, instead of being a true law of thinking is no more than the law of abstract intellect. The very pattern of the proposition contradicts it, since a proposition promises a distinction between subject and predicate and that (the identity proposition) does not give what its pattern requires" [24].

Hegel, who speaks constantly of the superiority of dialectical thinking over elementary logic, does not mention the role of elementary logic,

[21] Im. Kant, *op. cit.*, p. 280.

[22] *Ibid.*, p. 282.

[23] G. W. F. Hegel, *Précis de l'encyclopédie des sciences philosophiques*, Paris, 1952, p. 47.

[24] G. W. F. Hegel, *op. cit.*, p. 90.

even though inferior to dialectical logic, in the progress of correct thinking. Whenever he refers to elementary logic — "common", as he calls it — his tone is almost contemptuous. "The *figures* of syllogism, as they are called, ... are placed one after the other in common treatises and nobody has ever thought of revealing their necessity, to say nothing of their importance and value... However, they have a deep meaning which is rooted in the necessity causing every moment, as a determination of the notion, to become, itself, the totality and the reason of being mediators" [25], Hegel writes. In the same text, Hegel specifies one of the major differences between elementary logic and dialectical logic: the former states logical forms in sequence, the latter hierarchizes them. The specific character of logical laws was no problem to Hegel. With him, a supporter of objective idealism, the object of philosophy reduces itself to the study of the self-movement of the absolute idea.

However, what must be mentioned is that Hegel's dialectical logic transcends only the elementary logic of identity, and neglects the elementary logic of relations. According to Hegel, the correlation between elementary logic and dialectical logic reduces only to the correlation between Aristotelian and Hegelian logic. The correlation of Hegel's logic to Stoic logic, Chrysippus' in particular, lies outside his concerns. In Hegelian logic, the principle of sufficient reason does not refer to the dialectical unity of cause and effect but to the dialectical unity of the individual and the general. The categorial formula of the principle of sufficient reason in Hegelian logic does not, as it is commonly considered, assume the form: "If there is a cause, there is an effect, too", or "If there is a condition, there is a consequence, too"; it takes on the form: "If there is the individual, then there is the general, too". Hegel reckoned among judgments only those whose predicates were genera as against their subjects. "Judgements", Hegel writes, "differ from propositions; the latter contain a determination of the subjects which are not in a relation of generality with them — , for instance, a state, an isolated action or something similar: Caesar was born in Rome in the year..., he waged war in Gaul for ten years, he went across the Rubicon, etc...., these are propositions and not judgments" [26].

By excluding the existential judgments of relation from among judgments, Hegel has also left aside the necessary judgments of relation which mirror objective laws; thus, he has also allowed metaphysicians to absolutize the logic of relations under the form of logistic and oppose it both

[25] *Ibid.*, p. 117.
[26] G. W. F. Hegel, *op. cit.*, p. 111.

to Aristotelian and Hegelian logic[27]. Although the principle of sufficient reason lies at the basis of the unity between both individual and general and cause and effect, Hegel substantiates his logic especially on the former side of this principle.

Engels, who accepts the Hegelian viewpoint according to which dialectical logic, in opposition to elementary logic, "breeds the high forms from the lower ones", stresses the validity of elementary logic, and asserts that "... nodoby will conclude on the basis of this fact that... formal logic is nonsense"[28]. At the same time, Engels gives the following example of hypothetical judgment: "if the sun rises above the horizon the day begins"[29], a judgment of cause, consequently of relation, which we may find at the core of the Stoic logic[30]. Thus, Engels went beyond the limits of Hegelian logic and he indicated to Marxist logicians the path leading to that law of thinking which is able to synthetize both sides of the principle of sufficient reason that had been unilaterally dealt with before him. He also indicates the path Marxist logicians must go in their elaboration of materialist dialectical logic.

The first to undertake a thorough analysis of the correlation between elementary logic and dialectical logic was G. V. Plekhanov. "The same as inertia", Plekhanov writes, "is a particular case of motion, thinking according to the rules of formal logic (according to 'the fundamental laws' of thinking) is a particular case of dialectical logic"[31]. The next two pages, Plekhanov specifies: "... dialectics does not suppress formal logic, it only withdraws from its laws the absolute validity that metaphysicians have granted them"[32]. Plekhanov was right to say that elementary logic is of relative validity and that, by this very fact, it was inferior to dialectical logic, which enjoys absolute validity; but when he mistakes the plane of existence for that of thinking, he reaches the wrong conclusion that elementary thinking is a particular case of dialectical thinking.

[27] While between cause and effect there is a heterorelation, between individual and general there is a self-relation. The effect lies in its cause only as a possibility; the general lies in its individual as reality. The law of causality is a relation of succession; the relation between cause and effect links two individual and relatively independent phenomena; the relation between individual and general links two contradictory sides of the same thing or process.

[28] Engels, *Dialectica naturii* (The Dialectics of Nature), p. 245.

[29] *Ibid.*, p. 226.

[30] "With Stoics, notion is identified with cause itself", Emile Bréhier writes (*Chrysippe*, Alcan, Paris, 1910, p. 131).

[31] G. V. Plekhanov, *Les questions fondamentales du marxisme*, Editions Sociales, Paris, 1947, p. 141.

[32] *Ibid.*, p. 143.

Rest is a particular case of motion, indeed; but whereas between rest and motion there is a relation of simultaneity, between elementary thinking and dialectical thinking there is a relation of succession. Human reason first mirrors — through elementary thinking — the identity of things and then — through dialectical thinking — the contradictory unity between the relative identity of things and their absolute self-differentiation. Elementary logic is not a particular case of dialectical logic, since the latter relies on elementary logic, it does not subsume it, it implies it, it does not contain it. Those thinkers who hold that: "Newton's astronomy is therefore a particular case of Einstein's panastronomy, as Euclid's geometry is a particular case of Lobachewski's pangeometry" [33] are also wrong. The space studied by Euclid's geometry is a particular limiting case of the space considered by Lobachewski's pangeometry, but both sciences have an object of their own; they are comparatively independent and are in a hierarchical relation to each other, wherein the higher does not swallow the lower, but gets substantiated in it. It is not only in the history of science that Aristotle precedes Hegel, Newton precedes Einstein, Euclid precedes Lobachewski; in the thinking process, too, elementary logic is prior to dialectical logic, classical mechanics is prior to relativistic mechanics and three-dimensional geometry is prior to many-dimensional geometry. If, against all reason, people had lived surrounded not by a diversity of phenomena, but by their ultimate essence, in a kind of Platonic heaven, then the history of science and the thinking process would have developed the other way round. Aristotle would have appeared only when people had realized that the two contradictory sides of every thing make up an indestructible, relatively stable and relatively independent unity. "An intelligent being residing inside an atom", a contemporary thinker says, "that would be confronted with perceptions, would hardly admit of a bivalent logic as a mediator between them and its physical theories. On the contrary, bivalent logic would appear to it at the end of an extensive mathematical processing of its immediate observations, i.e. the moment it would come across the principle of correspondence, so to say, reversely." [34] If out of the above text we leave out logical empiricism and substitute the comparison between elementary and dialectical logic for the comparison between bivalent and dialectical logic, the remaining is what holds in what was said before the quotation.

Lenin clearly shows that "... dialectical logic requires the object to be taken in its development, in its 'self-motion' (as Hegel sometimes says),

[33] Gaston Bachelard, *Le nouvel esprit scientifique*, Alcan, Paris, p. 42.

[34] Herman Meyer, "Les jugements singuliers dans l'explication de la nature", in *Actes du XI^ème Congrès intern. de philos.*, vol. VI, p. 45.

in its change" [35]. All the while emphasizing the specific object of dialectical thinking, Lenin does not overlook the role of elementary thinking and of the science dealing with it. "Formal logic", he writes, "which we limit ourselves in schools (and we must limit — with corrections — in lower school forms) assumes formal definitions, following what is most common or most obvious, and it confines to them" [36].

The German philosopher Max Raphaël was well aware that dialectical logic must define its stand both to the elementary logic of identity, and to the elementary logic of relations; but he disregarded the necessary discursiveness of logical thinking, and thus came closer to Plekhanov's solution than to Lenin's, and included both elementary logics in dialectical logic, and took them as relatively independent moments of the latter. "It can be easily shown", Raphaël writes, "that in a like logic of (dialectical) motion, the logic of relations and the logic of things are both contained— or, better, maintained" [37]. On the same page, he resumes the idea, stating it more clearly. "The logic of (dialectical) thinking", he adds, "is not only a specific law alongside and beyond the other two, but it is, above all, a logic subsuming the other two. It does not refute their relative right to independence and existence; it claims universality, it claims to maintain both logics on a higher stage of unity without removing their antagonistic character" [38]. It is on Plekhanov's thesis that those Soviet philosophers ultimately rely when considering that after materialist dialectics has been set up elementary logic is no longer useful.

Ever since 1946 when the correlation between formal logic and dialectical logic came to the fore again, there seems to be some logicians that have made the opposite mistake. M. S. Strogovich, V. S. Asmus, K. S. Bakradze, N. I. Kondakov and others denied dialectical logic the right to independent existence, holding that the only science dealing with the laws and forms of correct thinking is formal logic, interpreted materialist-dialectically. M. N. Alexeev, V. I. Cherkesov, D. P. Gorski and B. Kedrov are among the Soviet logicians who support the relatively independent existence of dialectical logic. "Dialectical logic reveals the forms of dialectics in thinking..." [39]. M. N. Alexeev writes, and V. I. Cherkesov stresses "the actual significance of Marxist dialectical logic as a

[35] V. I. Lenin, *Încă o dată despre sindicate* (Once Again On Trade Unions), in *Party Construction*, E.S.P.L.P., 1953, vol. II, p. 224.

[36] *Ibid.*

[37] Max Raphaël, *La théorie marxiste de la connaissance*, N.R.F., Paris, 1937, p. 28.

[38] *Ibid.*

[39] M. N. Alexeev, "Despre esența logică a judecății" (On the Dialectical Essence of Judgments), in *Voprosy filosofii*, no. 2, 1956, p. 58.

superior, truly general and universal logic"[40], without underrating the "rational meaning and positive importance of formal logic"[41].

The Soviet logician E. B. Shur also shares the opinion that dialectical logic has its own object of research. "No doubt that dialectical concepts differ from the intellectual ones not only in substance, but also in form; they do not fall under the bounds of the logical-formal theories of the concept"[42], he writes. And further on he specifies: "The use of some concepts or others (intellectual or dialectical — H.W.) depends on the character of the object of knowledge, on the development stage of knowledge; on the tasks that practice sets to knowledge"[43].

Therefore, elementary logic is no particular case of dialectical logic; it is a necessary moment of logical thinking.

There are non-Marxist logicians today who have realized the insufficiency of classical logic.

"Aristotle's logic, wherefor what it is, is, can no longer suit a physics where it should read that: what is, is not or what is, becomes"[44]. Carl Hempel finds that "most terms used in present-day science are relations or functions, rather than classes or properties"[45]. The author of this finding suggests that classifying logic should now give place to the logic of relations. "It is clear", Herman Meyer says, "that we need a correlator between possibilities and achievements other than between objects and classes"[46].

Obviously, Aristotle's predicative logic had become insufficient already at the time of Stoics, immediately after science had passed from the classification to the investigation of laws, from the study of essence to that of necessity; it is as early as the time when Chrysippus set the foundations of the logic of relations, opposing Aristotle's logic. Mathematical logic today has undoubtedly made big progress as against Chrysippus' logic and the more so Aristotle's.

[40] V. I. Ckerkesov, "Unele probleme ale teoriei noțiunii în logica dialectică" (Some Problems of the Theory of Notions in Dialectical Logic), in *Voprosy filosofii*, no. 2, 1956, p. 74.

[41] *Ibid.*

[42] E. B. Shur, "Teoria conceptului în logica formală și cea dialectică" (The Theory of Concept in Formal and Dialectical Logic), in *Voprosy filosofii*, no. 3, 1958, p. 88.

[43] *Ibid.*, p. 93.

[44] Emil Namer, "Le concept et le contact dans la science contemporaine", dans *Actes du XI^ème Congrès int. de philos.*, 1953, vol. VI, p. 120.

[45] *International Encyclopaedia on Unified Science*, vol. II, no. 7. *Fundamentals of Concept Formation in Empirical Science*, The University of Chicago Press, 1952, quoted by Roger Garaudy, *Rev. phil.*, 1956, no. 2, p. 222.

[46] Herman Meyer, *op. cit.*, p. 45.

The French Marxist philosopher Roger Garaudy is right to write that: "Russell's system of formal logic is an undisputable progress as compared to Aristotelian logic; it no longer deals with classifying objects, but with the study of subordination relations" [47]. But mathematical logic, irrespective of the degree of perfection attained, studies only the logical laws according to which thinking can mirror only quantitative relations among things [48]. There are even non-Marxist epistemologists to avow it: "... it (mathematical explanation) contents itself to reveal only the quantitative relations of phenomena. It is basically incapable of providing a strictly qualitative explanation, and less so an explanation in terms of essences" [49]. Referring to the same cognitive value of the mathematical thinking, another contemporary non-dialectical methodologist writes: "Therefore, modern theoretical physics does not explain, it does not even bother to do so, it only describes phenomena within the framework of a highly mathematical thinking" [50]. No matter how much improved, mathematical logic will never be able to reach the explicative value of materialist dialectical logic; if this value were absent, contemporary science would be broken in its progress.

Comparing classical mechanics with relativistic mechanics, the French philosopher Gaston Bachelard wrote some time ago: "There is no transition whatsoever between Newton's system and Einstein's. One cannot pass from the former to the latter by adding knowledge, by increasing measurement accuracy, by correcting principles. A radically innovating effort is required" [51].

Bachelard does not know that transition is not quantitative alone, that, on the other hand, discontinuity does not rule out continuity but relies on it; however, he understood that Einstein's mechanics is not simply Newton's mechanics improved, but another mechanics. In the same way, materialist dialectical logic does not emerge by perfecting Aristotelian and Stoic logics; it is another, qualitatively superior, logic. Its elaboration requires a thorough understanding of the revolution wrought by dialectical materialism in the history of philosophy.

[47] Roger Garaudy, *De l'empirisme logique à la sémantique*, in *Rev. phil.*, no. 2, 1956, p. 222.

[48] "... A purely mathematical outlook... cannot cover the whole object of the natural sciences, there remains something in nature that it fails to grasp" (A. I. Herzen, *op. cit.*, p. 206).

[49] Thomas Greenwood, "Valeur explicative des mathématiques", in *Actes du XI^ème Congrès...*, vol. XIV, pp. 152—153.

[50] J. H. Tummers, "La physique théorique n'explique pas les phénomènes mais les décrit", in *Actes du XI^ème Congrès...*, vol. VI, p. 62. "... Logistics is no science of the real: its field is potentiality..." (Jean Piaget, *Essai sur les transf.*, pp. VII—VIII).

[51] Gaston Bachelard, *op. cit.*, p. 42.

3. THE LAWS OF DIALECTICAL LOGIC

Logical thinking is unique and universally human. Many non-dialectical philosophers mistake logical thinking for various world outlooks or for different scientific research methods. They break to pieces the indestructible unity of human reason.

Robert Lenoble considers, for instance, the magic world outlook as a kind of logic: "... man has always striven for reason and knowledge. To that end he had attempted many kinds of logic and many kinds of scientific explication that we see following one after the other throughout history or even opposing themselves in the same epoch" [52]. Unlike R. Lenoble, the French philosopher Lucien Goldmann mistakes reason for the special methods of particular sciences, and breaks logical thinking into three kinds of thinking "As a matter of fact — he writes — there are three fundamental patterns of knowledge, that we call hypothetic-deductive, nomothetic-experimental and dialectical thinking" [53]. L. Goldmann considers that logical thinking is of three kinds: mathematical thinking, materialist thinking and social thinking. Concerning dialectical thinking, Goldmann writes that: "The criterion of the truth of dialectical statements implies... action and transformation of the very laws that structure the real towards value realization" [54]. Therefore, he concludes: "... in speaking of the thinking which refers to historical and social life,... statements are not, they become true or false through men's action" [55]. In fact, no matter the object it is focused on, logical thinking is the same with all people and in all times. Its two moments — the moment of elementary thinking and that of dialectical thinking — are unmediatedly linked to each other. Elementary thinking is implicitly dialectical, too, and dialectical thinking is implicitly elementary, too. Dialectical thinking renders explicit the implicit dialectical character of elementary thinking. The two moments of reason are not only implied but also consecutive.

Elementary thinking knows the object in its relatively stable identity and when it turns onto itself — through elementary logic [56] — it discovers the elementary structure of logical forms and the elementary laws according to which all these forms of correct thinking are combined. Dialectical thinking knows the object in its absolute self-movement, and when turning onto itself — through dialectical logic — it discovers the dialectical struc-

[52] R. Lenoble, "Types d'explications et types logiques au cours de l'histoire des sciences", in *Actes du XI^ème Congrès...*, vol. VI, pp. 12—13.

[53] Lucien Goldmann, "Remarques sur la théorie de la connaissance", in *Actes du XI^ème Congrès intern. de philos.*, p. 90.

[54] *Ibid.*, p. 92.

[55] *Ibid.*, p. 93.

[56] To think is to think of the *object*, to do logic is to think of thinking.

ture of logical forms and the dialectical laws according to which they are combined.

The elementary notion which reflects the dialectical structure of the object -- that notion mirroring only the distinctive essential characteristics of a kind of things — has also a dialectical structure; but this structure becomes apparent in the light of dialectical logic, of the dialectical notion of notion, mirroring the contradictory character of the two sides of any notion: the sphere and the content. Thinking makes up the former according to the elementary laws of reason and the latter in keeping with the dialectical logical laws. The fact that elementary notions also have a dialectical structure and self-develop does not in the least mean that they are dialectical notions since, at their level, thinking is not yet aware of the dialectical character of the reflected object[57].

The dialectical structure of the elementary forms of logical thinking is governed by the dialectical laws of thinking, which at this level do not act only spontaneously but implicitly, too. The dialectics of thinking is something else than dialectical thinking. Elementary thinking cannot know the dialectical structure of the object or the dialectical structure of its mirroring either. Only dialectical thinking can know the dialectics of the object and of its reflection. Only dialectical thinking is able to reveal the dialectics of thinking.

In establishing the dialectical pattern of the logical forms of elementary thinking and in the transition process from one form to the other, the dialectical laws of logical thinking act spontaneously and implicitly. The dialectics of elementary thinking is governed spontaneously and implicitly by the dialectical laws of reason which mirror the dialectical laws of the objective world. To elementary thinking, the dialectics of its forms exists only "in se". It becomes "per se" only at the level of dialectical thinking. From the strictest point of view of elementary logic, thinking can be rigorous only if it goes beyond tautology, the limiting expression of the law of identity. But an elementary judgment, which mirrors the objective dialectical unity between identity and difference, and which asserts that S is P, goes beyond tautology, by this very fact, and relativizes the law of identity such that, according to it, thinking can concentrate only on the identity of different things, being no longer tautological. In this way, the path to dialectical thinking is open. The relativity of the elementary laws of logical thinking is obvious in the light of the

[57] As a rule, elementary notions are formed through abstracting, on passing from the sensory concrete to the logical abstraction, and through concretization, by passing from the logical abstraction to the logical concrete, dialectical notions are formed. In the former process analysis and induction prevail, in the latter synthesis and deduction.

absolute and universal character of the dialectical laws of correct and just thinking.

The laws of dialectical thinking do not discard the laws of elementary thinking, they are founded on them. The laws of dialectical logic do not annul the laws of elementary logic, they transcend them. The laws of dialectical logic are superior to the laws of elementary logic, because, by observing them, thinking succeeds in discovering the two contradictory sides of the thing under consideration and, thus, sensibly enhance men's power over their environment — natural and social. Moreover, while observing the laws of dialectical logic, it also observes the laws of elementary logic. A dialectical judgment does not proceed contrary to elementary logic, since the contradiction it reflects proceeds in a relatively stable unity; the nodal leaps it mirrors distinguish between relatively stable qualities and the connection it clears up includes relatively independent things. The universal validity of the structure of syllogism and of its rules is governed by the relative stability of the identities of things. Dialectical judgment mirrors the self-transformation and interdependence of relatively stable and relatively independent things.

The thinking which does not observe the laws of elementary logic falls into sophistics, through dissolution of ideas into the motion of ideas. The thinking which ignores the laws of dialectical logic becomes metaphysical, by absolutizing the relative stability and the relative independence of ideas. As long as it reflects superficial extensive practice, logical thinking has a spontaneous tendency to absolutize the identity of things, to absolutize the moment of elementary thinking; when this tendency is encouraged and strengthened by the conservative interests of a reactionary social class, elementary logic is turned into the metaphysical method [58]. The *dynamics* of thinking is not altogether alien to elementary thinking; what it overlooks is the *self-dynamics* of thinking.

The major law of dialectical logic is the law of contradictory predication, first formulated by Ath. Joja in a paper delivered in 1955. When the scientist discovers the fundamental categories and laws in his field — categories and laws whereby the fundamental categories and laws of objective dialectics are rendered manifest — elementary thinking is spontaneously transcended and its implicitly dialectical structure becomes explicit, shocking most often its very discoverer, who, unarmed with dialectical logic, either denies his own discovery, or bows to the incogniz-

[58] I do not think those are right when asserting that there is "a coincidence between metaphysics on the ontological level... and formal logic on the level of the science of thinking". Elementary logic in itself is neither metaphysical, nor idealist. It does not absolutize the relative validity of its laws. Nor does it deny their correlation with objective laws. Metaphysics and idealism were added to it from the outside.

able divine, or else he tries to mend the old logic here and there. Zeno of Elea, Kant and Russell are typical of these three attitudes [59].

In the first half of our century, scientists were confronted with some dialectical judgments which they called paradoxical because amazing. Here are some of them: "Radiation is both corpuscular and wavy", "Space is both continuous and discontinuous", "Light velocity is both constant and variable", "The cortex neuron is both active and passive", "Life is both assimilation and disassimilation", "A microelement is not predictable, but a class of microelements is", etc.

Many scholars thought they were witnessing the reversal of reason, a new "fall" of man through reiteration of the same original sin: the daring to test the apple of knowledge. They did not realize that those paradoxes are many dialectical judgments, that did not in the least sin against the elementary logical law of non-contradiction, but which, relying on it, went beyond it.

Actually, the dialectical judgment: "Space is both continuous and discontinuous (non-continuous)" is not made up, as some may think, of the affirmative elementary judgment: "Space is continuous" and the negative elementary judgment: "Space is not continuous" which are, indisputably, incompatible within correct thinking, but of the affirmative elementary judgment: "Space is continuous" and the infinite affirmative elementary judgment "Space is non-continuous (discontinuous)" [60].

The elementary logical law of non-contradiction forbids correct thinking to admit simultaneously and in the same relationship the truth of two opposite judgments, one of which negates what the other asserts. The dialectical logical law of contradictory predication compels correct thinking to find the two contradictory predicates, simultaneously predicable and in the same relationship about one and the same subject within the same *unique* affirmative complex judgment. At the same time, the law of non-contradiction is strictly observed since the assertion of the judgment: "Space is both continuous and discontinuous" implies rejection of the contradictory judgment: "Space is not continuous and discontinuous".

Any dialectical judgment is equally observant of the other elementary logical laws. The law of identity is observed in that the two contradictory predicates are ascribed simultaneously and in the same relationship to the same subject, as they mirror the two contradictory sides of the same object. The law of the excluded middle is equally observed since acceptance

[59] In discovering antinomies, inner contradictions, the Buddhists held that there are a number of problems that could not be answered either in the negative or in the affirmative.

[60] An infinite judgment is superior to negative judgment. The affirmative judgment is always more valuable than the negative. An infinite affirmative judgment points to the existence of something, whereas a negative judgment shows only what is not.

of the former results in rejection of the latter and in the rigorous statement that a third does not exist, that it is not possible. To observe the first law of elementary logic means to observe at the same time the law of sufficient reason within the logical identity. Since the law of non-contradiction and of the excluded middle are the corollaries of the law of identity, all being founded on the law of sufficient reason, the law of contradictory predication observes and transcends them all at the same time [61].

Many contemporary scientists hold that dialectical judgments originate in the confusion of two different points of view and that to distinguish between the two so-called confused viewpoints automatically solves the paradoxes of contemporary science, which they consider only apparent.

In order to convey the correlation of two both simultaneously and successively incompatible properties of the same thing, Niels Bohr suggested that a new logical notion be adopted, viz., "complementarity". "The epistemological lesson taught by the recent development of the physical sciences", Bohr writes, "can also suggest some means of tackling other fields of knowledge... To acknowledge the relation of complementarity is no less necessary in psychology... Particularly... those situations when we prove our arbitrariness is incompatible with the psychological situation when we rightly undertake a causal analysis" [62].

Niels Bohr does not distinguish between a logical contradiction — rejected by elementary logic — and a dialectical contradiction — required by dialectical logic. That is why he confuses an affirmative dialectical judgment — where two contradictory predicates are ascribed at the same time and in the same relationship to the same subject, with two contradictory judgments — one of which negates what the other asserts. Taking into account the law of non-contradiction which forbids correct thinking to admit that two contradictory judgments are both true at the same time, Bohr introduces the notion of complementarity, which does not violate the simultaneous incompatibility of two contradictory judgments, but admits of their successive compatibility. Piaget shares the same opinion. "That a micro-object

[61] It is clear why the dialectical unity between the two diametrically opposite fundamental sides of every object and of any knowledge on it — is called "contradictory", since language, which is used to convey elementary judgments, becomes contradictory as soon as it is compelled to formulate dialectical judgments. Those who reduce logic to elementary logic thus face a "logical scandal". Extending the meaning, dialecticians have also termed contradictory the dialectical unity that has determined, through reflection, the formation of a contradictory sentence. Thus, the contradiction is not exclusively linguistic. From this point of view I cannot agree with Mircea Florian who says that: "The contradiction is not ontological or logical, it is only grammatical", M. Florian, *Curs de logică* (Course in Logic), 1941—1942, vol. II, p. 258, lithographed.

[62] Niels Bohr, *Despre noțiunile de causalitate și complementaritate* (Coneerning the Notions of Causality and Complementarity), in *Dialectica*, 1948, no. 7—8, pp. 317—318.

is at times wave and at times particle, this means it can be included at times in one system of relations, at others in another system — never in both at a time" [63].

As a matter of fact we deal here with dialectical judgments that emerged by virtue of the law of contradictory predications, which mirror through their contradictory predicates the existence of the two contradictory sides of any object. These contradictory sides exist simultaneously, even though we can ascertain them only successively. "Simultaneity is real even if we can ascertain it only relatively" [64], Roger Garaudy rightly writes. The dialectical judgment: "A micro-object is at the same time and in the same relationship both wave and particle" violates none of the elementary laws of correct thinking nor is it confined to their observance.

Others try to "solve" the judgments of dialectics by revealing an alleged violation of the reference condition of this law, and not the alleged violation of the time condition of the law of non-contradiction.

As a matter of fact, dialectical judgments do not refer to *things* in motion, but to the very *motion* of things, before the "viewpoints" have been established. Dialectical judgments mirror the *developing* contraries and not the *developed* contraries. Therefore they mirror the contraries before they have been developed and, hence, before they have entered various correlations with other things.

There are some logicians who, as if foreseeing that dialectical judgments do not disconsider the law of noncontradiction, reduce dialectical judgments to the elementary judgment level.

In their opinion, the law of non-contradiction forbids only those judgments where the predicate is and is not available to the subject, at the same time and in the same relationship, but admits of judgments where two contradictory predicates are ascribable to the same subject. For instance: This pencil is yellow and non-yellow, viz., shiny, long, sharp, etc....[65]. This opinion is shared by the Polish logician Kazimierz Adjukiewicz. "For instance", he writes, "we can say of the Polish flag that it is white at the upper part and red at the lower, viz., that it is not white at the lower part. However, we do not see any reason to attack the law of contradiction" [66].

True that the law of non-contradiction is violated only by those judgments where the predicate is and is not ascribable to the same subject and it is not violated at all by dialectical judgments; still, there is a fundamental

[63] J. Piaget, *Introduction à l'épistémologie génétique.*

[64] R. Garaudy, *La théorie matérialiste de la connaissance*, Paris, 1953, p. 243.

[65] See also Th. Ziehen, *Lehrbuch der Logik*, Marcus-Weber, Bonn, 1920, p. 430 and f.

[66] Kazimierz Ajdukiewicz, *Deutsche Zeitschrift für Philosophie*, no. 3, 1956, p. 338.

difference between the elementary judgments with contradictory predicates and the dialectical judgments. The predicates of dialectical judgments are always categories, hence both are determinate, whereas the contradictory predicates of an elementary judgment are not categories and hence the predicate is indeterminate. The negative predicate of an elementary judgment wherein two contradictory predicates are ascribable to the subject mirrors, by its substance, an infinite number of outstanding or opposite, never contradictory, qualities as against the qualities mirrored by the positive predicate, and by its sphere, as soon as it is determinate, it is in a relation of coordination or contrariness at most, as against the positive predicate.

The fact that the law of non-contradiction admits of the validity of a judgment where two contradictory predicates are ascribable to the subject does not in the least mean that in mirroring the objective dialectical contradictions, elementary logic is sufficient. On the contrary, a dialectical judgment is not to be contained within elementary logic. Aristotle himself — the maker of elementary logic as a science — writes about the contradictory character of motion emphasized by Heraclitus: "It is, therefore, impossible to ever conceive that the same thing is and is not, as some think Heraclitus said" [67]. Aristotle, who refutes the elliptic formulation of motion, does not realize that he refutes at the same time the scientific formulation of motion: "A moving thing is and is not in the same place at the same time". In this dialectical judgment, the affirmative link is "is" and the contradictory predicates are "is" and "is not".

For fear of dialectics, B. Russell considered Heraclitus' famous aphorism: "We dive and do not dive in the same river" as mystical [68]. However, he approves of Plato's formulation: "You cannot dive twice in the same river since new waters keep running over you" [69]. In the latter formulation, the Heraclitean dialectical judgment: "The river that we dive in is concomitantly the same and yet another" is reduced to the level of an elementary judgment, that no longer annoys the old logic.

The same is done by the Polish logician K. Ajdukiewicz, who thinks that thinking may reflect the contradictory character of motion only by elementary logic. "For hundreds of years already the students in mathematics have known to point out Zeno's mistake in his argumentation. This mistake is to actually admit that the sum of the infinite time intervals... would not be finite. With Zeno, the sum $\frac{t}{2} + \frac{t}{4} + \frac{t}{8} + \frac{t}{12} \cdots$

[67] Aristotle, *La métaphysique*, trans. J. Tricot, Paris, 2nd ed., 1948, vol. I, p. 122, IV, 1005 f.

[68] B. Russell, *op. cit.*, p. 9.

[69] *Ibid.*

cannot have a finite value. The elementary theory of the infinite geometrical sequences teaches us that the sum here is finite and has exactly the value of t" [70].

While Zeno raises the problem of the quality of motion, Ajdukiewicz measures its quantitative side. From Zeno's point of view, who refutes the very essential existence of motion, Ajdukiewicz measures only its appearance. The French philosopher Victor Brochard's reply to some mathematicians claiming that Zeno's aporiae have long been solved, is fully applicable to Ajdukiewicz, too "... to compute the exact moment when Achilles will reach the turtle is... to answer the question when? while you are being asked how?" [71].

Starting from the false idea that a judgment that observes the law of non-contradiction can no longer have two contradictory predicates what would ascribe at the same time and in the same relationship to their subject, Adam Schaff writes: "When we state the principle of the unity of contraries, we only set a polar complex structure of the objects and phenomena, or else, the contrastiveness of the various aspects of an object considered under different relations; in every like case we can and must speak in a logical non-contradictory way" [72].

There are also people who simply hold that the dialectical method is sophistics. "... Hegel's dialectical method, especially", M. Aebi writes, "consists of two sophisms: Aristotle's *fallacia secundum quid et simpliciter* (passage from A to non-A) and confusion of contrariness with contradictoriness (passage from non-A to B, before A)" [73].

The author of the above-quoted text utterly ignores the fact that the contradictory predicates of a dialectical judgment are categorial and hence, the negative predicate is not only "secundum quid" but also "simpliciter", and the relationship between the two predicates is contradictory, since the third is impossible [74]. Aristotle was right to underline that: "it is not the same thing not to be a thing and not to be absolutely" [75], but he did not even think of the existence of the two contradictory sides of any

[70] K. Ajdukiewicz, *op. cit.*, p. 322.

[71] V. Brochard, *Etudes de philosophie ancienne et de philosophie moderne*, Paris, 1926, p. 10.

[72] Adam Schaff, *D. Z. für Ph.*, 1956, no. 3, p. 344.

[73] M. Aebi, "Système naturel des sciences", in *Actes du XI^ème Congrès...*, vol. II, pp. 242—243.

[74] For instance, the predicate "non-red" has only a relative existence since it only means "non-red"; the predicate "non-corpuscular" has absolute existence as well, since it means wavy alone.

[75] Aristote, *Organon, Les réfutations sophistiques*, tome VI, trans. J. Tricot, 1939, 167, a, p. 16.

object, but only of the confusion of the two main meanings of "is": the copulative and the existential [76].

All this clinging to the old logic only brakes the development of contemporary science, and prevents thinking from overstepping its elementary moment, from working out dialectical judgments.

From the logical law of the contradictory predication — that mirrors the objective law of the unity of contraries and of internal contradiction — derives the logical law of determinate negation — which mirrors the objective law of the transformations of quantitative changes into qualitative changes — and the logical law of the double negation — which mirrors the objective law of the negation of the negation. All these laws of dialectical logic imply the connection of all the logical forms, which mirrors the universal connection.

If, by virtue of the law of contradictory predication, thinking makes affirmative dialectical judgments — that reflect the dialectical unity between the two diametrically opposite sides of any object — by virtue of the law of determinate negation, thinking makes negative-affirmative dialectical judgments — that mirror the leap from one quality to another — and by virtue of the law of double negation, thinking formulates negative-disjunctive-affirmative dialectical judgments — which mirror the completion of a particular process [77].

The same as in objective reality the inner contradiction governs the qualitative self-transformation and completion of that process within the universal connection, so the other laws of dialectical logic necessarily derive out of the law of contradictory predication. Thinking cannot mirror the

[76] To say that non-red is non-red, does not mean that non-red exists as such, but to say that the non-individual is non-individual, means that non-individual exists as such; it is the general.

[77] Here are such judgments: The first: "Every historical event is both necessary and accidental". The second: "It is not the eminences that make history suit their needs but history makes the eminences suit its needs". The third: "Society cannot develop unlimitedly within primitive communal relations or within the relations of exploitation either, but only within the scientifically established communist relations". See also Fogarasi Béla, *op. cit.*, pp. 202—203. That we are dealing here with a determinate negation is also proved by the fact that the affirmative part of the negative-affirmative judgment preserves the relation stated by the negative part; only its solution is negated and transcended in negative disjunctive-affirmative judgments; the affirmative part synthetizes the negated form of the object with the non-negated content of its negation. Special heed should be paid to the fact that the terms of dialectical judgments can be but categories.
Obviously, a dialectical judgment does not always assume the same linguistic form. A sentence does not only express the judgment developed in and through it. The dialectical judgment: "The future does not belong to capitalism, but to socialism" can be conveyed also by another sentence with a higher stylistic value: "All roads opened to the contemporary society lead to communism".

qualitative leap itself. The qualitative self-transformation of things can be reflected as it is manifest as a correlation between the old and the new quality. The negative-affirmative judgment mirrors by its negative part the old quality and by its affirmative part, the new one.

The connection of logical forms cannot be reduced to the dialectical synthesizing of the two sides of the law of sufficient reason — the self-relation and hetero-relation; it also specifies materialistically the primordial character of the forms to the latter, thus covering the whole diversity of possible relations [78].

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Therefore, the laws of materialist dialectical logic rely on the laws of elementary logic, but they do not include them, they assume them, they do not engulf them.

Materialist dialectical logic has a research object of its own.

By observing the laws of elementary logic alone, thinking cannot go beyond the identification of things and establishment of their elementary interrelations; by observing the laws of dialectical logic, thinking can detect the inner objective contradiction that governs the self-dynamics of things from lower to higher, leading to new possibilities and in this way considerably enhancing people's capacity to change the environment they live in.

Deprived of idealism, which considers logic as pure fabrication of the mind, and freed from under the rule of metaphysics, which claims that elementary logic is the only possible logic, elementary logic retains its full validity and, together with dialectical logic, which deals with the logical laws of formation and development of dialectical notions, judgments and reasonings and their logical structure, ensures the correctness of human thought and action.

[78] In the world of micro-objects, for instance, the statistical law comes to the fore, showing the influence of the sets, of the environment on the individual micro-object; that is why the set is predicable, whereas the individual is not.

VI. DIALECTICS OF THE LOGICAL FORMS OF KNOWLEDGE

The object is not reflected in the subject's consciousness passively, mechanically, automatically. The object is reflected by the subject actively, unlike the way the glossy surface of a thing reflects the things in front of it.

Knowledge is an active process that consists of a sequence of gnoseological operations, whose main stages are: comparison, analysis, synthesis, abstracting and generalization.

By comparison, the subject discovers the similarities and dissimilarities among things. Comparison cannot go beyond the phenomenal aspects of things. It can only reveal the phenomenal characteristics that make things comparable. And since the phenomenal characteristics rendering things comparable are but their essential phenomenalized characteristics, comparison pushes the process of knowledge forward, towards reflection of essence. The phenomenal characteristics distinguishing between things are essential phenomenalized characteristics, too, but they are not the essential characteristics of *those* things. The yellow color of this pencil is but the outcome of phenomenalizing the essential characteristic of being yellow, but the characteristic of being yellow is not among the essential characteristics of pencils [1].

Disclosing similar characteristics is, above all, of outstanding practical importance. The essence of a kind of things cannot be changed unless changing the similar characteristics, viz., these phenomenal characteristics whereby the essential characteristics of that kind of things are rendered manifest. Acting upon the phenomenal characteristic distinguishing between the various things of the same kind can never result in the appearance of new essences. Irrespective of the color it is dyed, the gate of a yard will stay a gate. Obviously we do not refer here to those phenomenal characteristics shown by a *new* essence at the moment of its apparition. Under like circumstances, it is precisely on these characteristics that action is required to consolidate the new essence.

Through analysis and synthesis, the subject decomposes things in their component parts and processes in their successive states, to re-com-

[1] Not all the characteristics reflected in their essentiality are essential to every thing.

pose them again and thus discovers the constant relationships that the objective laws involve [2].

Finally, through abstracting and generalizing the subject completes the inductive identification of the essential characteristics of things and of their essential relationships, and discovers at the same time the kind of things that the essential characteristics belong to, inter-related by virtue of the essential relationships discovered.

Whereas comparison, analysis and synthesis are operations that do not go beyond the phenomenal world, abstracting and generalization penetrate into the realm of essentiality. Analysis and synthesis help the subject become acquainted with the relationship of the whole to its constituent parts, abstracting and generalizing are conducive to mirroring the dialectical unity between phenomenal and essential. Analysis and synthesis are concerned with the whole-to-part correlation, abstracting and generalizing — with the general-to-individual one.

It is through abstracting and generalizing that thinking makes comparison, analysis and synthesis turn from gnoseological operations into logical operations. But before turning into logical operations, comparison, analysis and synthesis were material operations, reiterated billions of times in the process of work. Unlike them, abstracting and generalizing are purely logical operations that only thinking is capable of. Relying on its abstracting and generalizing capability, thinking can compare, analyze and synthetize essences and essential relations, such as, for instance, various modes of production or various world outlooks. Thinking can compare, analyze and synthetize what is no longer available to senses only on account of its abstracting and generalizing ability. Without abstracting and generalizing, comparison, analysis and synthesis continue to be material and gnoseological operations, and they also cannot become logical operations [3].

Comparison, analysis and synthesis, abstracting and generalizing, are the major operations whereby human knowledge, in the process of practice and by means of language, builds the logical forms of reflecting the objective world, primarily the notion.

[2] Analysis and synthesis also push the process of knowledge towards notions-formation since the characteristics of things are better revealed by considering the relationships among them and among their component parts.

[3] As soon as it has become a logical operation, comparison implies: comparability of thinks, specification of a criterion and preservation of that criterion. Otherwise logical comparison cannot proceed correctly.

1. NOTION

Notion is the logical form whereby thinking mirrors the essence of things, what is general in individual things, the quality of a particular amount of things. Therefore, the content of notion is the reflection of the identity of the various things of the same kind, and the form of notion is its very logical structure. The content of notions is *objective*, since it mirrors something existing outside human consciousness, something existing "in re"; the form of notions is *subjective*, since it belongs in human consciousness, it is "in mente". As a matter of fact, the subjective structure of the logical forms of knowledge is also governed, according to the content it structures, by objective reality.

The logical structure of notions consists of two elements: the sphere and the content. The sphere mirrors a particular group of things, the content reflects the essential characteristics of all the things of that group. By its sphere, the notion reflects the whole of individual things, whose general characteristics are reflected through its content. The content of notions shows the identity of the various things of the same kind reflected by their sphere. The sphere reflects the quantity, the content — the quality. Sphere and content are two contradictory sides of any notion. Every notion is a unity of opposites. Every notion is a dialectical contradiction since it mirrors the dialectical contradiction between the individual and the general, phenomenon and essence, quantity and quality, similarity and dissimilarity, etc.

In the process of notion-formation, generalization leads to formation of sphere, whereas abstracting ends up in content. If, from the point of view of logical structure, stress is laid on the content, from the point of view of the gnoseological process, stress it is laid on the sphere. Before disclosing the quality, human thinking assesses the existence of a particular quantity. By their sphere notions look back to the sensory, to practice, through their content they look forward, to judgment, to reason. The sphere mirrors phenomena, the content — their essence.

The real fact that a larger number of things has fewer qualities in common has determined the logical law of the inverse correlation, viz., a notion whose sphere is broader has a poorer content[4]. The notion which reflects

[4] The criticism made by some logicians to the law of inverse relation originates in their failing to grasp the difference between a distinctive notion and a scientific one, and in confusion of the sphere of one and the same notion with the spheres of super- and sub-ordinated notions.

After showing that a richer content of a notion does not induce restriction of its sphere, but it sometimes leads to a quite opposite effect, the well-known Soviet logician D. P. Gorski concludes that the law of inverse proportionality between the sphere

in its sphere *everything* that exists independent of it, reflects in its content only one characteristic: *objectivity*, which is called *matter*.

To reach the Marxist notion of matter, humanity has travelled a long, meandering and contradictory historical path.

Only by understanding the subjective character of the logical forms of reflection can we explain the difference between the way reality was mirrored by the primitive man and the way it is mirrored by the contemporary. The dialectics of the history of thinking is not governed by the dialectics of substance, of object alone; it is governed by the subjectivity and relativity of the very logical forms, of the very discursiveness of thinking.

Matter always moves in time and space, things have never but phenomenalized essences and the earth has long moved round the sun. However, many thousand of years were needed for human thinking to find out all these. It is through human thinking that the world acquires self-consciousness, though not at once, but gradually, by an equally long and contradictory process.

At first, when the scope of people's action was still narrow, when tools were at an early stage, when social practice was confined to the surface of things, the thinking of primitive people could hardly distinguish between society and nature, individual and society, subject and object, the part and the whole, etc.

Under the everyday impact of social practice, people have set up language and started using the same words whenever dealing with similar things or with the same thing under various circumstances. It is in this way that synchretic notions and individual notions started developing in the minds of primitive people. By synchretic notions they mirrored the things left in the shadow of their work. The sphere of synchretic notions included a large group of things of varied species and genera, put together because of one similar, even per chance similar, characteristic, which was often not inherent in things themselves, but rather in those looking at them. It is precisely this superficial characteristic that the content of synchretic notions reflected.

Maybe there was a time when people denoted everything outside the scope of their work by the synchretic notion of "sky", for instance. It was by the notion of sky that they denoted those things they had no power

and content of notions is not universally valid. "Given that a velocity of the same order of magnitude can travel different ways, the sphere of the notion of velocity... will obviously become broader" (D. P. Gorski, *op. cit.*, p. 70).

It is true that the law of inverse proportionality is not universally valid, only that it does not refer to the correlation of the sphere to the content of the same notion, which in its scientific development steadily adds in scope; it refers to the sphere and content of a range of super- and sub-ordinated notions.

over. Yet in the dim light of this notion they actually "identified" the unknown. It is clear that the characteristic denoted by the content of this notion was not inherent to the object, but to the subject. In less developed language the memory of those times still persists in words such as "sky of the sun" or "sky of the clouds" meaning what is currently referred to as "sky" today; in words like "sky of the plants" for what we call earth today, and "sky from under the ground" for sea. All of them still preserve the old synchretic notion of sky.

The child's thinking also proceeds from indistinctiveness to distinctiveness. In its mind, too, synchretic and global notions are the first to take shape. When one and a half year old, my little girl, for instance, denoted by "house" any building, any arrangement or orderly system. By a similar process, the members of an Australian tribe use the notion of "shell" to denote books as well, because they open and close, whereas the members of a Brasilian tribe use "water" also with the meaning of looking-glass, because they can see themselves in it.

By discovering similar synchretic notions with backward people and of children, some researchers drew the rash conclusion that thinking proceeds from general onto individual notions and from abstract to concrete notions.

As a matter of fact formation of general and abstract notions has been prepared by a long standing blooming of individual and concrete notions. Knowledge of the essential characteristics of all the things of the same kind has long been prepared by knowledge of the essential characteristics of each separate thing. The essential characteristics are disclosed to human thinking in its social practice not only as generality but as constancy, when work encompasses only a small number of things. Before denoting by general notions the unity of diversity, people had to denote the diversity of this unity first. Whereas general notions denote the objective dialectical unity between individuality and generality, individual notions reflect the dialectical unity between constancy and temporariness. Time is more intimately connected to human consciousness than space is, but man discovers it only after he has conquered space [5]. The dialectics of the self-development of notions proceeds from global to individual notions and onto general ones.

Expansion of production accounted for ever more things coming out of the shadow cast on them by social practice. Other things constantly emerged from anonymity, coming within people's scope of action. The correlation of synchretic to individual notions was constantly building up on the individual side.

[5] Temporal notions were formed with the help of words that had long denoted spatial notions.

Whenever social practice still included a relatively small number of things, people were less interested in the qualitative identity of things than in their various qualities. People then were so overwhelmed by the individuality of things that they did not even suspect the kinds they belonged to. Notions continued to stay for a long time in the vicinity of the sensory forms of reflection. At that time people felt the need to *describe* things, not to *classify* them [6]. Their thinking was full of individual and concrete notions. Through their notions they did not succeed in going beyond a set of relatively constant characters of the same thing or of a small group of things.

To this day there are peoples who lack the notion of "tail" and who have only such notions as "the dog's tail" or, "the sheep's tail" or "the bird's tail". Until today there are backward populations that do not have notions like "parrot" or "tree" or "fish", etc.

Being more sensitive to dissimilarities than to similarities, primitive people failed to denote characters, actions and relations as such. They had not yet succeeded to logically detach the characters, actions and relations from the individual things they belonged to.

The characteristic of being hard was denoted by them by the notion "stonelike"; the notion of "legs" denoted tallness and the notion "moonlike" denoted roundness. A particular color was not mirrored by a particular notion. The number of notions denoting the same color was approximately the same as the number of things having the same color. They were not sensitive to the *same* color of different things, but to the different things with the same color. They were less interested in the identical color of different things than in the things themselves they acted on unmediatedly. They had the notions: "the gray of the horse", "the gray of the dog", "the gray of the duck", etc., but they did not have a notion for "gray".

Various actions were denoted by notions reflecting not the very actions but rather the things in action. They, for instance, did not have the notion "to wash", but they had various notions such as: "to wash the head", "to wash the basket", "to wash the fur", etc. These notions did not denote actions as such, but actions related to the things undergoing or performing these actions. The Eskimos, for instance, have such notions as "to fish the whale", "to fish the seal", but they do not have the notion "to fish". Primitive people did not have the notion of "blow", but they had countless notions for the various blows dealt with various implements.

That backward people grasp dissimilarities easier than similarities is also obvious in how they denote relations. In Melanesian, the word "a buru" denoted the notion that mirrors ten coconuts and the word "bola", ten fish. Melanesians have therefore several distinctive notions to denote the

[6] A people having first known the aeroplane and then the car, because Europeans reached them by plane first, called the car a "wingless aeroplane".

same figure whenever they have to do with different things. They are less interested in numerical identity and much more in the qualitative distinction between fish and coconuts. When handling things of the same quality, they then pay attention to quantitative differences. They have the notion "a koro" denoting a hundred coconuts, and the notion "selavo" for a thousand coconuts. Anyhow, people who lack generalizing and abstracting power cannot reflect relations otherwise than together with the individual things that those relations involve. The phrase "the first finger of the other hand" whereby the Eskimos denote the notion "six" still preserves the remnants of times when people had not yet succeeded to distinguish logically between relations and the things involved.

In the beginning, thinking was particularly concrete and descriptive. "To speak", writes Daniel Essertier referring to that time, "is partly to mime, to still act. Language is first an abridged reproduction of act, and it remains so for a long time"[7].

Thinking develops gradually, from reflection of things onto their characters, their actions and ultimately their inter-relations. Men's generalizing and abstracting power increased with their increased material power over the environment, with the improvement of tools. "Reflexive thinking", the same Essertier writes, getting nearer to historical truth, "originates in the separation — at least ideal — of tool from act: the tool turns into *idea* henceforth..."[8]. As a matter of fact, the separation of tool from act was completed the moment man started using *the same* tool to change *different* things. The *material* separation of tool from act marked the beginning of *ideal* distinction between ideas. The firmer the people's control of the environment, the more advanced thinking was, passing from description of individual things onto the identification of their genera and their general inter-relations.

Notions which denote qualities are more difficult to develop than those denoting things. By their substance, the notions denoting things denote a set of qualities "concresi" and materialized in things as such, whereas the notions depicting qualities illustrate an abstracted quality, isolated from the things it belongs in and which does not exist as such. Even more difficult to develop are the notions denoting actions or relations [9]. The notions which mirror things are concrete, those which mirror qualities, actions, relations are abstract. Actions and relations do not exist as such. People

[7] Daniel Essertier, *Les formes inférieures de l'explication*, Paris, Alcan, 1927, p. 40.

[8] *Ibid.*, p. 39.

[9] As a matter of fact there are no relational notions, there are only relational judgments. The notion of "paternity", for instance, mirrors the quality of a particular man to be the father of another man. The paternal relationship is illustrated by the judgment "X is the father of Y". Relations are never mirrored by notions, they are mirrored only by judgments.

come in touch with things that act or are acted upon, not with actions as such. They have to do with certain things that are in a certain correlation, not with the correlations as such. Thinking evolves slowly from individual concrete notions to general concrete notions and onto the abstract general notions.

That relational notions developed much later than those denoting things is also evident from the linguistic facts analyzed in an earlier book by Aram M. Frenkian. After showing that such geometric notions as "straight line", "curved line", "circle" are not denoted by words deriving from words that refer to things but from words that refer to actions, A. M. Frenkian finds out that the word "angle" comes within the same category and concludes as follows: "Here is one more instance of an abstract notion which does not seem to derive from the name of a concrete object..., but as a final outcome of some action; hence it has an energetic origin"[10]. Therefore, knowledge succeeded in setting up abstract notions mirroring geometric relations or forms *after* it had shaped abstract notions denoting actions.

Starting from Marx's idea whereby people do not start by looking at things theoretically but by acting upon them materially, some Marxist logicians think that those notions that reflect actions ought to have been shaped before all other notions.

It is true that people get knowledge of things by acting upon them, but they discover their own action after having discovered things and their actions. Practice is a *relationship* of subject to object and a relationship cannot be known before its relates (viz. object and subject) are known. To the primitive man his relations with nature do not exist as relations. " ... the animal is not 'referred' to anything, it has no relations generally"[11], Marx writes. Man has got them, but he discovers them later.

Even today it is easier for thinking to work out notions denoting things than notions denoting qualities, actions or relations. The closer thinking is to the sensory, the calmer. This explains the tendency of philosophers to turn adjectives and verbs into nouns. Nouns enliven, "enhance" the stability and substance of the quality, action or relation concerned, turning it into a research object.

But before reason reaches the generalizing and abstracting process through philosophic categories, thinking has to deal with common notions[12].

[10] Aram M. Frenkian, *Le monde homérique*, J. Vrin, Paris, 1934, p. 24.

[11] K. Marx and F. Engels, *German ideology*. E.S.P.L.P., 1956, p. 27.

[12] Gnoseologically, any notion is general and abstract since it is the outcome of generalizing and abstracting. Only from the stand of logical classification can notions be divided into concrete and abstract, by their content, and into individual and general, by their sphere.

What is a common notion? A common notion is a **distinctive** notion, i.e. a notion that by its content denotes only the essential distinctive characters of a particular kind of thing. On an "everyday use" level that is enough. Distinctive notions are generally human and unanimously acceptable. They lie at the basis of the mutual understanding among people. They have neither a class character nor a national character. There is no ideological battle without them, since there is no ideological battle that can proceed unless the same thing is referred to by its opponents.

Distinctive notions are formed according to the elementary laws of correct thinking. A tree is a tree; a thing cannot be and not be a tree at the same time and in the same correlation; it is either a tree or a non-tree; if it has certain qualities, then it is a tree. Distinctive notions are formed by virtue of the law of identity, of non-contradiction of the excluded middle and of sufficient reason.

By reflecting the dialectical structure of things, distinctive notions have also a dialectical structure, but the dialectics of notions is revealed only in the light of dialectical notions. In shaping the dialectical structure of distinctive notions, as part of elementary thinking, the laws of dialectical thinking act not only spontaneously, as the elementary laws of logical thinking do, but also implicitly. To elementary thinking itself, the dialectics of distinctive notions exists only "in itself", viz., it does not exist "for itself". The dialectics of elementary notions becomes "for itself" only on the level of dialectical thinking.

But the entire tedious advancement of thinking toward dialectical notions is suspended; it is no more "than a sham of pure intellect"[13], if notions are denied their cognitive role. Or, there are many logicians contaminated by "the arrogant modesty of positivism"[14], whose "major idea... lies in renunciation of the essence of things"[15], who come precisely to such a conclusion. In their opinion, notions do not denote the identity of things by their content. Identity does not belong in things, but in words. The law of identity does not reflect the relative stability of things, it is one of the countless possible axioms of "scientific language". "It goes without saying", Ch. Perelman writes, "that with logicians, any application of the principle of identity implies that the same signs always preserve the same signification. But when can you be sure of this perfect identity of signification? When an artificial language which postulates it is devised ..., when you can do with handling and do not care about their significance, and *a poste-*

[13] Thomas Greenwood, "Valeur explicative des mathématiques", in *Actes du XI*ème *Congrès int. de philos.*, vol. XIV, p. 146.

[14] Gaston Bachelard, *La philosophie du non*, P.U.F., 1949, p. 19.

[15] Bernard van Hagens, "La valeur noétique des sciences de la nature", in *Actes du XI*ème *Congrès int. de philos.*, vol. VI, p. 58.

riori about the truth of the sentences resulting from their combination"[16]. Raymond Bayer shares the same opinion. "There is the similar", he writes, "since there are words ... and there is the ego that expresses it in these partial identities that are words"[17].

The very things exist as such only for the supporters of "naive realism" who have not transcended the consciousness of the man in the street — claim the logicians who have adhered to any of the schools of neopositivism. "Concrete object realizes the logical object, and its existence, in a common acceptation, realizes pure existence the same way the gross rectilinearity of the edge of a roof realizes the ideal rectilinearity of the geometric straight line"[18], Ferdinnd Gonseth says. Things are imperfect replicas of notions. "A strong *a priori* guides our experience. The real is no more than realization"[19], G. Bachelard writes. If to objective idealism things have never been anything else than decayed *Ideas*, to subjective idealism they are accomplished notions.

However, unlike Kantian apriorism which was transcendental, the apriorism of neo-Kantians is purely conventional. "Therefore", Jean Wahl writes, "denomination will turn into independent objects the sets, numbers and relations, operations and their outcome that consciousness may have reached"[20]. The non-Marxist philosopher today, hostile to dialectical materialism, is compelled to identify the universal with the conventional and the thing with the normal, since he can no longer accept the Platonic theory of the universal or the Kantian theory of the a priori forms of the intellect either. "The accomplishment of the thing", Paul Ricœur writes, "therefore implies the prevalence of the normal over the pathological ... and it is precisely this normal accomplishment that exposes 'anomaly' as an alteration of the 'same' thing perceived normally...,

Thus, anomalies do not join in Dingauffassung..."[21]. If people have to do only with their own sensations, the general is reducible to the general-human. "Therefore, objectivity is contemporary with intersubjectivity"[22], P. Ricœur concludes.

However, the external world does exist and notions denote it ever more horoughly and multilaterally. The more thoroughly the notions denote

[16] Ch. Perelman, "Evidence et preuve", in *Dialectica*, nos. 41/42, 1957, pp. 24—25.

[17] Raymond Bayer, *Traité d'esthétique*, Arm. Colin, Paris, 1956, p. 244.

[18] F. Gonseth, "La logique en tant que physique de l'objet quelconque", in *Actes du Congrès int. de philos. scient.*, vol. VI, p. 7.

[19] G. Bachelard, *op. cit.*, p. 58.

[20] Jean Wahl, "Notes sur quelques aspects empiristes de la pensée de Husserl", in *Phénoménologie, Existence*, Armand Colin, Paris, 1953, p. 123.

[21] Paul Ricœur, "Analyses et problèmes dans "Ideea II" de Husserl", in *Phénoménologie, Existence*, p. 39.

[22] *Ibid.*, p. 41.

reality, the more general they are. Man cannot change the real concrete of his own will and according to his needs unless his work is strongly enlightened by the loftiest abstractions. A notion which, by its sphere, covers a more comprehensive kind, reflects in its content a deeper quality.

But not only restriction of the sphere of notions hits a limit: the *individual here and now*, but also the expansion of the sphere of notions stops at a given moment: *when the sphere of notions has come to reflect everything that exists independently of it.*

At these two extremes of thinking, distinctive notions turn into dialectical notions joining the two extremes of generalization. A thing is a knot where all the categories and laws of existence intertwist. A thing is a finite existence with infinite qualities, a transient existence, but which includes both the eternity of the past and the eternity of the future. Knowledge of a thing is inexhaustible. It can develop only through philosophical categories and laws.

Whereas a distinctive notion *is* concrete to the extent it mirrors a set of distinctive essential characteristics of a particular kind of thing, a dialectical notion *becomes* ever more concrete, the better it succeeds in denoting ever more essential, hence, contradictory, characteristics.

Categories set up couple by couple, in pairs ; they mirror the two contradictory sides of every thing. Matter and motion, space and time, finite and infinite, one and multiple, identical and different, essence and phenomenon, general and individual, necessity and accident, ground and effect, object and subject, etc., are the categories evincing the contradictory character of existence itself. Many were those who discovered these contraries, but few were those to understand their unity. That is why, on reaching those contraries, they thought to have hit against the famous divine censorship that does not allow reason to go any further.

"The Kantian *antinomies* of reason are but the opposition of two determinations necessarily deriving from the same concept"[23], Hegel explains. True, Hegel, who solves the subject-object drama in an idealistically objective way, does not accept the irrefutable fact that the two determinations necessarily deriving from the same concept illustrate the two opposite sides of the object which the concept denotes; but this is no reason for us to abide by J. Maritain's opinion according to which "Hegelian thought is Kantian reason deified forever"[24].

Hegel discovered the contradiction in things, despite his idealistic objective interpretation of his own discovery. Things are, indeed, phenomenalized essences, but things do not realize divine essences or ideal essences either, but only their own essences. The essences of things are not dis-

[23] G. W. F. Hegel, *Science de la logique*, tome II, Paris, 1949, p. 358.

[24] Jacques Maritain, *La dialectique de Hegel*, N.R.F., January, 1957, no. 49, p. 20.

tributed by thinking, they are discovered by it. Any notion is formed against its opposite. Notion A is formed as against non-A. On the cognitive level of elementary notions, thinking is not aware of its mirroring the dialectical unity between the individual and the general. By reflecting the identity of the various things of the same kind, a distinctive elementary notion retains only *the identity*. Faced with the unity of the opposites and internal contradiction, distinctive notions are impressed by *unity* alone. But of the self-dynamics of things they retain only the instances of *stability*.

Only the moment *generalization* has reached a category does the distinctive notion change into a dialectical notion. As the notion of *thing*, for instance, which, as a distinctive notion, denoted, by its sphere, all the forms of moving matter[25], and, by its content, denoted the quality of these forms of having a relatively stable structure, was set up in opposition to such notions as "relation", "process" and "consciousness", it turned into a dialectical notion by division into the individual-general categories, by virtue of the laws of dialectical logic[26]. The dialectical notion of the "contradictory unity between the individual and the general" was formed under the effect of the laws of dialectical logic having assumed consciousness. Every thing is at the same time and in the same correlation both individual and general, viz., non-individual; there is no thing that is eternal, but it self-develops through individual changes turning into general changes; a thing is neither individual, nor general, it is the contradictory unity between the individual and the general[27].

A similar situation can be noticed with the categories of the special sciences, too. Present-day geometry has discovered the dialectical notion of "spatio-temporality", modern physics has come to the dialectical notion of "corpuscular-undulatory micro-object", biology nowadays has realized that metabolism is at the same time and in the same correlation anabolism and catabolism, physiology starts from investigating the two dialectically interrelated function of any organism — excitation and inhibition.

As many scientists failed to transgress the bounds of metaphysical thinking, they have continued to this day to look upon any "unity of opposites" as a mere logical contradiction, not so much of thinking as of lan-

[25] We refer here only to the *forms* of moving *matter* not to the *forms of the motion* of matter.

[26] It is obvious that what is divided is the content of the notions, and not its sphere.

[27] *Individual* changes result in the emergence at a given moment of a new *general* species which is no more than a new species of the general-kind that the old species — whose transformation has resulted in the new species — belongs to. The new species is an oppositional relation to the species it has evolved from. The fact that various individual things set up the same general, has made the idealists believe in the primordial character of the general.

guage, especially. Referring to the contradictory character of motion and to Zeno's aporias, the English physicist James Jeans writes sententiously: "If Zeno's reasoning is translated into the scientific idiom, nothing is left of it"[28]. Paul Schrecker, too, can see only a defective wording in the dialectical unity between motion and rest. "By borrowing modern terminology, his fundamental thinking can be translated (Leibnitz's) in saying that there can be no contradiction between a continuum and its limit. Thus, rest is not the opposite, but *the limit* to motion..."[29]. As if the limit to motion were not precisely the nodal point where motion changes into its opposite: rest!...

Not even those thinkers who realize the need for working out dialectical concepts cannot succeed, outside dialectical materialism, to free themselves from the rule of metaphysics. "We suffer from an inability to mobilize our thinking"[30], complains G. Bachelard, for instance. Therefore, that concept that could not have been dialectical yet should always be suspected"[31], he warns the contemporary scientists. But as he is not a materialist, Bachelard does not get any closer to Marxism, but to Bergsonism, and his "dialectics" ultimately falls into sophistics. "*To put it differently*", he writes, "*the space of common intuition that the objects are contained in is but a degenerescence of the functional space where phenomena occur.* Or, contemporary science tends to know phenomena, not things. It is not at all "thing-like". The thing is no more than an arrested phenomenon"[32]. According to Bachelard a concept becomes dialectical by making the principle of identity void. Bachelard agrees with Alfred Korzybski who "requests non-Aristotelian educators ... to teach an open psychism..." and "warns that training in non-identity has a therapeutical effect as far as normal adults are concerned"[33].

However, the world is not an eternally moving canvas wherefrom the coarse intellect of the practical man cuts off "more geometrico" the things he needs in his everyday life. The world is equally essential and phenomenal. It is the dialectical unity between the temporary constancy of essence and of the permanent variability of phenomenon. A thing is no "arrested phenomenon", but a thing whose phenomenal development has not reached the nodal point where changes in the phenomenal characteristics bring about changes in essence. Just like Bergson, Bachelard "purifies" lastingness

[28] Sir James Jeans, *op. cit.*, p. 115.

[29] Paul Schrecker, "Leibniz et le principle du tiers exclu", in *Actes du Congrès int. de philos. scient.*, vol. VI, p. 76.

[30] G. Bachelard, *op. cit.*, p. 134.

[31] *Ibid.*

[32] *Ibid.*, p. 109.

[33] *Ibid.*, p. 128.

from everything that lasts. Because *of the motion* of things, Bachelard can no longer see the *things* in motion. But change is always the change of something, and this "something" is precisely the thing whose essence has not yet been affected by changes in the phenomenal characteristics. The temporal variability of the phenomenon is unconceivable when deprived of the relatively atemporal constancy of the essence. A thing is neither variability alone, nor constancy only, it is the dialectical unity between movement and rest, between identity and differentiation. A dialectical concept does not emerge by making the principle of identity become void, but by transcending it. The principle of identity is not false but relative. The objective character of a principle is not dependent on its absolute character. The thinker who considers the mobility of things overlooking their stability is no less a metaphysician than the one who, unable to get beyond the stability of things, overlooks their mobility.

"Negation", Bachelard himself writes, "should keep in touch with the first emergence. It should enable a *dialectical generalization.* Generalization itself should include what it negates. As a matter of fact, every progress of scientific thinking this past century originated in such dialectical generalizations including what it negates"[34].

But as he stood alien to dialectical materialism, Gaston Bachelard has switched from the metaphysics of absolute immobility to the metaphysics of "pure lastingness", failing to discover the role of the principle of identity in correct thinking, as a whole[35].

A highly significant development was that of the notion of state. In the beginning, it was opposed to that of non-state, mirroring, in its sphere, any administrative management, and in its content, the characteristic of having coercive power over all the citizens living in a certain area. It is not difficult to understand why such a notion was freely circulated, and it still is in many non-Marxist sociological treatises. It is an elementary distinctive, an unscientific notion. It does not reveal the contradictory character of the state and thereby enables perpetuation of confusion between administration and state, all the while promoting the prejudice on the thoroughly and eternally human character of the state. It is all but natural that similar confusions and prejudices should be extremely advantageous to contemporary non-Marxist thinkers.

[34] G. Bachelard, *op. cit.*, p. 137.

[35] The Romanian existentialist Barbu Zevedei, who attempted to dissolve materialist dialectics in the *Cratylian* flow of sophistics, wrote: "Whereas Aristotelian logic relies on *identity*, the concept subsuming the identicalness of a series of things, it is precisely this principle that the new logic makes void and places the concept on authentic terms "De la dialectică la existențialism" (From Dialectics to Existentialism), in *Saeculum*, no. 3, 1943, p. 52.

In the light of historical materialism, the distinctive notion of state is halved in its content and yields the notions: democracy and dictatorship; it has its sphere defined historically, and breeds notions as: slave-owning state, feudal state, capitalist state and socialist state, which mirror the historical, concrete forms of the two basic kinds of state: dictatorship of the minority over the majority and dictatorship of the majority over the minority. Any state is democracy to the ruling class and dictatorship to the class ruled. Any state is the contradictory unity between its democratic and dictatorial side." ... So long as the proletariat *continues to use* the state, it does not do so in the interest of liberty, but to repress its opponents, and as soon as one can speak of liberty, the state as such ceases to exist"[36], Engels writes. Whereas Lenin, also referring to the state in the period of transition from capitalism to communism, writes: "at this stage, the state must necessarily be a democratic state — this, of course, *in a new sense* (for the proletariat and those who own nothing, in general) and dictatorial in a new sense (against the bourgeoisie)"[37].

The scientific, dialectical notion of state is illustrative of the fact that any state is in its essence both democratic and dictatorial, that the state is not eternal, but historical, that it disappears following the development of its democratic side and the restriction — *though not weakening* — of its dictatorial one.

On the level of the dialectical notion of the state, people cease to mistake the notion of state for that of administration. Any state is administrative, but not any administration is state-like. The state disappears, the administration remains. Society will no longer need the state, but it will always need administration.

The state emerged in history as the dictatorship of the few against the many and will disappear from history as dictatorship of the many against the few. Only these two fundamental kinds of state can exist in history. This explains why the scientific notion of state meets the fierce opposition of non-Marxist sociologists. Fear of the dictatorship of the proletariat prevents them from understanding the contradictory essence of the state, and those who have come to understand it are trying hard to prevent the others from doing the same; they preach the formation of a state "above classes", democratic for everybody, which, from the point of view of the dialectical logic is a genuine "contradictio in adjecto". It is only in a society without social classes or state that "a democracy for everybody" can exist. But the historical path to that society necessarily passes through

[36] See Karl Marx, *Critica Programului de la Gotha* (Critique of the Gotha Programme), P.M.R., 1948, p. 61.

[37] V. I. Lenin, *Marx—Engels—Marxism*, P.M.R., 1949, p. 354.

the dictatorship of the proletariat. The dictatorship of the proletariat is the state whose historical mission is to build the stateless society.

The bourgeois state opposes social progress and steadily expands its dictatorial side into fascism.

In contemporary society, the self-dynamics of the state polarizes into proletarian democracy on the one hand, and dictatorship of the imperialist bourgeoisie on the other. Two basic classes, two basic kinds of state.

Anybody reasoning the way the Polish logicians K. Ajdukiewicz, V. Rolbetski, a.o., would find nothing contradictory in the content of the notion of state. They see only the irrefutable fact that the state is dictatorial *relative to the ruled class* and democratic *relative to the ruling class*. Therefore, as those characteristics are contradictory in various (not the same) correlations, there is no contradiction in that case. As a matter of fact, in their opinion, all dialectical contradictions are "solved" in a similar way.

True, those characteristics that are opposite only in various correlations cannot make up a unity of the opposites, hence they are non-dialectical opposites. They are the object of elementary logic. But the characteristics of being dictatorial and democratic belong to the very essence of the state. The state is *at the same time and "in the same correlation"*, viz. correlated to its own essence, both democratic and dictatorial.

In a dialectical judgment, the phrase "in the same correlation" means "before the two opposites were established and correlated differently". Dialectical logic is not concerned with the various relations that the contradictory essence of the state assumes, but with this very contradictory essence, while elementary logic starts from existence of set up opposites, dialectical logic shows the process of the setting up of opposites. Before they are rendered obvious in various correlations, the two opposite characteristics have made up a dialectical unity. The two contradictory functions of the state are inseparable in space or time, as well. They make up only one essence.

This is how logician Fogarasi Béla illustrates the self-dynamics of notions: "Work vs. non-work, abstract work and concrete work, democracy vs. non-democracy, bourgeois democracy and socialist democracy, nation vs. non-nation, bourgeois nation and socialist nation"[38].

To my opinion, the Hungarian logician stops at the halving of the sphere and no longer perceives the halving of the content. Abstract work and concrete work imply that work is at the same time and "in the same correlation" both abstract and concrete; bourgeois democracies and socialist democracies, as shown above, imply that the state is at the same

[38] Fogarasi Béla, *Logik*, Berlin, 1955, p. 145.

time and "in the same correlation", viz., from the stand of its processual self-dynamic essence, both democratic and dictatorial.

However, to non-Marxist logicians a dialectical notion is an intolerable logical scandal. "A concept is said to be contradictory in itself when 'it implies a contradiction', when analysis can decompose it in two contradictory concepts"[39], Edm. Goblot writes. But unable to conceive such a contradictory notion otherwise than as a "square circle", Goblot decides: "Contradictory — that is to say — unconceivable"[40].

What non-dialectical thinkers would not admit, however, is that dialectics belongs primarily in things themselves. "Lenin's 'gnoseology'", the French philosopher Maurice Merleau-Ponty writes, "by merging dialectics into materialist metaphysics, preserves dialectics, if embalmed, outside us, in as external reality"[41].

Scandalized by the contradictory content of dialectical notions, most contemporary non-Marxist thinkers prevent notions from mirroring the essence of things, lest they should get ultimately "lost" in contradictions; those notions denote only the quantitative relations among things, incognizable in their essence. "As we are unable to understand what events are, we must confine ourselves to describing their actions in mathematical terms"[42], James Jeans concludes. Considering mathematics as the only rigorously scientific method of research, Jeans stresses that the theory of relativity, for instance, "focuses on the measure of things, not on things themselves; in this way it can give us nothing of their nature"[43].

Nicolai Hartmann holds that any attempt to solve the antinomies is futile since the antinomy is the very essence of the thing[44].

According to him, the conflict between subject and object is irremediable, since the object is contradictory, whereas the subject can think and act only non-contradictorily. Hartmann did not even suspect the existence of the dialectical forms of logical thinking.

Ironically referring to Hartmann from the stands of logical empiricism, logician Anton Dumitriu writes: "Thinking does not reveal its knots or its difficulties through antinomies, but particular conflicts inside the world"[45]. Far from dialectical logic, A. Dumitriu argues: "However if reason illustrates reality through both its logical and its illogical, antinomical

[39] Edmond Goblot, *Traité de logique*, Armand Colin, Paris, 1941, p. 96.

[40] *Ibid.*

[41] M. Merleau-Ponty, *Les aventures de la dialectique*, N.R.F., Gallimard, Paris, 1955, p. 89.

[42] James Jeans, *op. cit.*, p. 29.

[43] *Ibid.*, p. 83.

[44] See N. Hartmann, *Der Aufbau der realen Welt*, Gruyter, Berlin, 1940, p. 165.

[45] A. Dumitriu, *Paradoxele logice* (Logical Paradoxes), București, 1944, p. 34.

forms, it follows that principles no longer retain their necessity and universality"[46].

It is only that the "antinomic" forms of reason are not illogical, as Anton Dumitriu attempts to persuade us, but logical-dialectical.

Ever more numerous are those contemporary non-dialectical logicians who begin to think that the only truly scientific "positive", non-metaphysical notions are those which don't mirror in their content the essence of things, but their inter-relations; not the quality of things but their quantity that can be formulated mathematically.

"In the rigorous sciences... the concept as invariant quickly goes to the determined quantity. Let us take for instance, the concept of force which, long loose from a quantitative point of view, has ended up in the human invariant:

$$f = mg.$$

No doubt that... f, m, g stay distinctive qualitative concepts, but it is numerical relations that are of importance to science. Invariancy therefore assumes an utterly quantitative character"[47]. Arnold Reymond is, however, aware of the one-sidedness of algorithmic logic. "But", he writes, "by mirroring the concept primarily in its extensive aspect, it has narrowed its meaning, eventually leading to restriction of the scope of logic"[48].

The quantitative aspect of things is highly important. In the self-development of things, changes in *quantity* bring about changes in quality. That is why relational logic, which deals with the laws of correctly mirroring the relations among things is highly important, too. But there are no relations among things without inter-related things. There is no relation without support. Relations are secondary. Primordial are the relates.

The characteristics of things are mirrored by the content of things, and their inter-relations are reflected by judgments. The notion of force, for instance, by its content, alongside the other characteristics, also includes that of being the product of mass multiplied by acceleration. However, any quantity has a particular quality that cannot be neglected. Any quality belongs in a particular quantity, though it is not reducible to it. By their content, notions denote first the essence of things and then their characteristics of being the outcome of certain relations or part of certain relations.

This disqualifying quantitativism was soon taken up by non-dialectical sociologists. The contemporary bourgeoisie is content to give up research

[46] *Ibid.*

[47] Arnold Reymond, *Les principes de la logique et la critique contemporaine*, Paris, 1932, p. 80.

[48] *Ibid.*, pp. 84—85.

in sociological categories and to concentrate on such subjects as: neighborhood relations among women, the nurse's behavior, instrumentalists in a symphonic orchestra during the performance, and others of the kind.

The question of the state, of class struggle, of the differences between capitalism and socialism are thus ruled out of public attention. Quantity swallows up quality. Essence is engulfed in numbers. The general is dissolved into the ocean of individual facts, necessity becomes lost amidst chances.

"It is the rule of any science that qualitative characteristics die away to leave quantitative characteristics be"[49], says R. Bayer.

Against the one-sidedness of pan-mathematicism, against the attempts to halve down reflection of reality, ever more numerous voices have been rising lately. "Today, however, we must say it", D. Dubarle writes, "every great mathematical creation is thought in the same human style of reason, a style whose maintenance seems to keep up a rising sap in spirit — a sap indispensable to creative fermenting, if not to the systematic exposition of results"[50].

Practice always gives reason the task to mirror the dialectical unity of quantity and quality.

Subjectivists have always held that to define is "to limit", viz., to introduce into the sensory experience outlines governed by the needs of practical and theoretical activity. As a matter of fact to define does not in the least mean to apply the limits of the subject to the object, but to mirror the qualitative limits among things. The definition shows the boundaries among things during their relative qualitative stability.

The definition is a logical operation whereby the content of a notion develops. The definition explains the notes by which the notion mirrors the distinctive essential qualities of a particular species of things and, since the notes developed by the definition make up precisely the content of the defined notion, then a definition is a developed notional content, and the content of every notion is an enveloped definition.

As a rule, the logical structure of the definition is given by the species is genus proximus and the specific difference.

It is, however, clear that these categories, more exactly categorems[51], are not on the same level. The genus and species belong to the sphere of notions, whereas the specific difference refers to the content of notions. That is why the formula of the logical structure of definition is actually the

[49] R. Bayer, *op. cit.*, p. 247.

[50] D. Dubarle, "L'utilité mathématique de la formalisation", in *Revue philosophique*, no. 2, April-June, 1957, p. 161.

[51] If logical categories denote highly general notions — the *predicaments*, logical categorems include the five basic kinds of predicates: genus, species, difference, property and accident — *the predicables*. The definition uses only the first three predicables since they alone illustrate essential characteristics.

following: the characteristics of the species are the characteristics of genus proximus and the specific characteristics. The common formula has acquired widerspread use because it is by far more convenient to handle extension than comprehension.

The notion defined always denotes the species that thinking concentrates on, and the defining notion reflects the characteristics of genus proximus and the characteristics that distinguish the defined species from the other species of the genus proximus.

Consequently, the definition is a judgment whose predicate is not only identical with the subject, but also contradictory, since it starts explicating the dialectical content of the subject.

"Therefore", the Soviet logician V. I. Cherkesov rightly says, "the notion of an object can be derived only by joining genus proximus (the universal) to the specific difference (the particular). Unless this joining of the contraries referred to is effected, the definition of the notion cannot be obtained. From what was said, it is obvious that the operation of defining the notion through genus proximus and the specific difference does not come within the general theory of notions in formal logic. But this fact is commonly overlooked"[52].

Equally interesting to note is that the structure of the definition also observes the dialectical principle of the unity between the logical and the historical. The *logical* structure of definition reflects the historical process whereby the definable *species* has departed from the other species of *genus proximus* and thus acquired a *specific difference*. *Man*, for instance, is a species of *mammal*, that has departed from the other species as soon as it was capable of *mastering the environment*.

The dialectics of the subject reflects the dialectics of the object.

There are, however, notions that cannot be strictly defined, but only characterized: the categories.

Categories have no longer a genus proximus. They can only be characterized in dialectical opposition to the other categories making up the pairs. For instance, the object is what is independent of the subject, what acts on the subject and can be known by the subject.

There are people who think that categories, too, are definable in the strictest possible way. Only that the definition: "Matter is a philosophical category by which we mirror, etc." suggested by them is no definition of matter, but of the "category of matter", viz., it is a definition of the *ontological*, not *ontic*, category of matter.

Nevertheless, if there are still people regarding it as a definition of matter itself, they ignore the irrefutable fact that the notion of "philosophical

[52] V. I. Cherkesov, "Problems of the Theory of Notion in Dialectical Logic", in *Voprosy filosofii*, no. 2, 1956, p. 77.

category" does not denote the genus proximus of matter, but is the genus proximus of the "notion" of matter. They inadmissibly overlook the essential difference between reality and thinking, between the plane of things and that of concepts. Matter cannot be defined by genus proximus, but in opposition to the category of consciousness with which it makes up one of its pairs, as Lenin defined it.

The definition concentrates and reinforces in a concise form our knowledge of a particular species of objects. The definition, therefore, completes the scientific investigation of a particular species of things. The definition can clearly formulate the notes of a notion only *after* the essential characteristics of the species of things referred to by the definable notions have been known.

Even though it has a simply convertible, reciprocating judgment as a logical form, the definition cannot be reduced to tautology, as neopositivistic logicians claim. It is not in the least "idem per idem". By explicating what the notion contains implicitly, the definition adds to the knowledge of the species of things the defined notion refers to.

2. JUDGMENT

In logic today, the struggle of materialism vs. idealism mainly bears on the problem of judgment. Dialectical materialism holds that judgment is a logical form of knowledge whereby man can mirror real relations, independent of the judgment reflecting them, whereas idealism continues to hold that whoever acknowledges the objective character of things and qualities is to be blamed for the most naïve metaphysics.

If Wilhelm Windelband considers that judgment is sheer "correlation between two contents of representations"...[53], the idealist logicians today have reduced judgment to the correlation between two linguistic symbols. "In short", Jean Piaget writes, "the true and the false are to logic but the formal truth and the contradiction between propositional statements... it (logic) receives as *data* a number of *statements*, some labelled as true, *others* as false and its own work begins with the formal composition of these statements, true or false by hypothesis"[54].

In the opinion of these logicians, judgments are not supposed to say anything about reality. They have not been developed to mirror what exists independently of them, but to "*cosmotize*", one way or another, *the chaos* of sensory experience.

[53] W. Windelband, *Präludien*, IIIrd ed., Mohr, Tübingen, 1907, p. 52.

[54] Jean Piaget, *Traité de logique*, Armand Colin, Paris, 1949, p. 7.

"We", Edmund Husserl writes, "understand the world of our experience always as the attire of ideas we have cast upon it, as if this world would exist in itself"[55]. Phenomenologists don't look for the origin of judgment in the structure and self-dynamics of the object that judgment is to mirror, but in the structure and life of the subject "Our analyses will be prompted by the principle, laid down Husserl, according to which the origin of logical forms should be sought in the structures of perceptive life"[56], Aron Gurwitsch writes.

By refuting the existence of essence and reducing the real phenomenon to its sensory reflection, neopositivists blow up all bridges between reality and judgments. The irrefutable fact that reality is much richer than the judgments it reflects is used by neopositivists as a proof that reality is altogether different from our judgments. "...A number of judgments that would make up a well-ordered series", Th. Greenwood says, "can never equate the joining force of the real, no matter the scope or intensity of that intellection. Moreover, discursive thinking advances through substitution of equivalents, since there are no equivalents in the realm of reality. Thus, mathematical-physical knowledge shares the shortcomings of discursive thinking"[57].

It is in the shadow cast by like ideas that André Darbon thinks that: "...realism is the philosophy which says: clothes make the man"[58]. In other words, realism, viz. materialism, would take for reality the attire of ideas that man's sensory experience is clad in.

It is true that judgment is poorer than reality. Judgment is not even meant to mirror the whole reality. It only mirrors the "equivalents" which Greenwood does not believe to exist in reality, but which actually do exist; they are the very identical qualities of things of the same kind. True that there are no two identical things, but there are several things sharing the same identity. A notion denotes precisely the essential, necessary and general qualities that make the various things of the same kind equivalent.

Because of the internal contradiction between the sphere and its content, notion is halved and polarized into the two extreme terms of judgment: subject and predicate. The subject, which takes over the cognitive task of the sphere, denotes quantity: one, some, all; the predicate, which takes over the cognitive task of the content, reflects quality, essence, a characteristic or an action. The judgment: S is P is equal to the judgment: quantity

[55] Edm. Husserl, *Erfahrung und Urteil*, Hamburg, 1948, p. 43, quoted by Jean Wahl in "Notes sur la première partie de 'Erfahrung und Urteil' de Husserl", in *Phénoménologie, Existence*, p. 104.

[56] Aron Gurwitsch, "Sur une racine perceptive de l'abstraction", in *Actes du XI*ème *Congrès int. de philos.*, vol. II, p. 45.

[57] Thomas Greenwood, *op. cit.*, p. 147.

[58] André Darbon, *La philosophie des mathématiques*, P.U.F., 1949, p. 190.

ris quality. The dialectical unity between the subject and the predicate of a judgment reflects in the logical plane, the real dialectical unity between quantity and quality, the individual and the general, between phenomenon and essence, difference and identity, etc. Judgment is but developed notion[59].

No doubt that the subject and the predicate of a judgment are notions above all. As notions, each has both sphere and content. But within a judgment, the subject only *implicitly* mirrors the identity of the object that thinking refers to, whereas the predicate *explicitly* shows it. The development of judgment from subject to predicate explicates — in the logical stage of reflection — the natural course of knowledge from mirroring the phenomenon to mirroring the essence. The subject mirrors the thing, the predicate — its essence. Naturally, the way the subject mirrors the thing differs from that of the sensory. As a concept, the subject denotes the thing not in its immediate individuality, but as a relatively constant ob-ject. On the level of sensory reflection, the subject — object duality does not appear yet. The sensory is adualistic. It is the notion which, by its sphere, begins to denote the individual as a relatively constant object,reflecting by its content the material basis of this relative constancy.

However, judgment is not reducible to juxtaposition of notions. Judgment is a unitary form of knowledge, where the subject, the predicate and their correlation make up a closed unity.

In a judgment, it is the predicate that casts light on the thing referred to by the subject. It is the predicate that casts the light upon the essence of the thing denoted by the subject. In the cone of light of the predicate, consciousness knows and identifies the things aimed at by the subject. It is the light of the predicate that removes from anonymity the essence of things that thinking is aimed at. Judgment as an act is a predicate-to-subject correlation. That is why logical stress never falls on the subject, but on the predicate, or on its correlation to the subject. The centre of the logical gravity of a judgment is always shifted to the predicate. Residing in the predicate is the new knowledge judgment involves. The subject comprises some previously acquired knowledge. That is why logical stress is on the predicate. Logical stress draws attention on that element of judgment that accounts for additional knowledge.

Any judgment is, in fact, an answer to a question and whoever asks a question never ignores the subject, but only the predicate or the relation; which proves that the answer emphasizes the predicate or the relation, and expresses, sometimes — maybe quite often, only the predicate or the relation without repeating the subject. The question: Who's there? is generally answered: So-and-so! That is, the person over there is *So and so!*

[59] Whereas any notion is an enveloped judgment from the logical point of view, a synchretic notion is also an enveloped judgment from the historical point of view.

The Soviet logician P. V. Tavanets is perfectly right to say that there can be no idea without subject. "For instance", he writes, "in the interrogative sentence: Who has come?, that Filippov calls judgment without subject, the object (and subject, respectively) of the reply judgment that we expect is actually referred to 'the one who has come'. A characterization of this object is required in the reply: 'He who has come is my brother' or simply 'My brother' "[60]. In a judgment, thinking proceeds from the known to the unknown, from subject to predicate.

The first judgments were devoid of subject proper. Every notion was a predicate by which people identified the thing before them. "The subject" was the very object perceived: "The thunder", "the lightning". These were "the predicates" that those judgments were probably confined to. "The subject" was so obvious to the collocutors ,that the need to think of it and say it had not been felt yet. As a matter of fact, the thing that the predicate was ascribed to was not yet an "object" that consciousness could refer to, saying: *This!* The characteristic of being *this* is a general characteristic. "*This?* The most general word"[61], Lenin writes. The thing in its real concreteness is unwordable. "What *can* be shown *cannot* be said", L. Wittgenstein notes. To name a thing is to speak of its essence, of a characteristic of its own, of an action exerted or experienced, of an interrelation, anyhow not of the thing itself in its infinite concreteness: "Every word (speech) *generalizes*..."[62], Lenin points out. Only after people had been able to think, not only of the things perceived that moment, but of the things they had perceived some other time, did they succeed in formulating judgments such as: "This is the tree", or "This is the stone", etc. .... People had had to identify the relatively constant characteristics of things they used to handle first, before they could distinguish between *this* tree and *that* tree.

One should not confuse the judgment "This is *the tree*" with the judgment "This is *a tree*". The former only implies distinction between subject and object, the latter already involves general notions. In the former, the subject and the predicate are identical notions, in the latter they are subordinated notions. The emergence of like judgments marks off the fact that the sphere of notions, too, has departed from the things perceived. In the judgment: "This is the tree", the subject illustrates the thing perceived as a thing existing independently of the judgment about it, and the predicate reflects the whole set of relatively constant characteristics of this thing.

[60] P. V. Tavanets, *Judecata şi felurile ei* (Judgment and Its Kinds), Editura Academiei, 1955, p. 34.

[61] V. I. Lenin, *Caiete filozofice* (Philosophical Notebooks), E.S.P.L.P.,Bucureşti, 1956, p. 250.

[62] V. I. Lenin, *op. cit.*, p. 248.

Before reaching the stage of formulating judgments whose predicates were general notions, people started mirroring the dialectical unity between the individual and the general by means of judgments, the predicates of which were individual notions with general significations. The famous judgment of a member of Bororo tribe "I am the red parrot" illustrates — on his level of abstracting and under the influence of magic — the dialectical unity between himself as individual and his totemic kind.

The mentality of all those belonging to Bororo tribe or other similar tribes does not fall under "the law of participation", neither did it stop at the "prelogical" stage of thinking as Lucien Lévy-Bruhl claims [63]. The quoted judgment would sin against the law of identity only if it overlooked that a member of Bororo tribe is a member of Bororo tribe and that the red parrot is the red parrot. But in their everyday life, the members of these tribes clearly distinguish between them and the totem. Lévy-Brühl comes back, unawares, on the stand of Parmenidean metaphysics and blames these uncivilized people for having already gone beyond tautology and started mirroring the contradictory unity between the individual and the general. That they are clear about the difference between themselves and the totem proves that the judgment that has scandalized so much the "Europeans" does not belong to "prelogical" thinking, which is not acquainted with the law of identity yet, and it belongs to naïve-dialectical thinking that tends to transcend already the law of identity [64].

Only a metaphysician can think that the law of participation is specific of prelogical thinking. In any judgment, the subject "participates" in the predicate, because the individual participates in the general.

The earliest mature judgments were singular existential and affirmative judgments, whereby people denoted a set of constant, hence distinctive, characteristics of a particular thing. From substantial judgments like: "This is a tree", or "This is not a tree", thinking has switched on to attributive, predicative and relational judgments such as: "This tree is green", "This tree blossoms" and "This tree casts shadow". If from the viewpoint of the quality of the copula, judgments are affirmative and negative, from the point of view of the quality of the predicate, they are in the sequence of their formation: substantial, attributional, predicational and relational.

[63] L. Lévy-Bruhl, *Les fonctions mentales dans les sociétés inférieures*, 6th ed., Alcan, Paris, 1922, pp. 77—78.

[64] "The totemic species", D. Essertier writes, "is to a group another ego: it is through it that it takes place in the Universe, which turns less strange and less hostile to him" (*op. cit.*, p. 233). That is why primitive consciousness "can... identify to a certain extent what we distinguish" (*op. cit.*, p. 230).

Classification of judgments into affirmative and negative derives from the very essence of judgment. Judgment is precisely that logical form of thinking which, through an affirmation or negation, mirrors real relations. An idea that does not assert or negate either is not a judgment, but a notion, a question, an order, a request, etc. In any judgment something is asserted or negated about something. Affirmation and negation lie in the very relation of the judgment. The very essence of judgment lies in asserting or negating [65].

Formalist logicians confine themselves to stating that in the affirmative judgment the predicate is asserted about the subject, and in the negative judgment, the predicate is negated about the subject. However, taking into account that the subject is a notion, we come to the conclusion that in the judgment: "The horse runs" it is not the horse, as a quadrupedal reality, that runs, but the notion of horse as subject of this judgment. Other formalist logicians define affirmative and negative judgments only from the stand of interrelations of the spheres of terms. In their opinions, in the affirmative judgment the sphere of the subject is included in the sphere of the predicate, and in the negative judgment, the sphere of the subject is excluded from the sphere of the predicate. Their definitions stop here. In fact, subject-predicate relations are indicative of the relations among things. A judgment where the sphere of the subject is included in the sphere of the predicate shows the real fact that the individual referred to by the subject is part of a particular kind referred to by the predicate; a judgment where the sphere of the subject is excluded from the sphere of the predicate points to the real fact that the individual referred to by the subject does not belong to the kind referred to by the predicate. Formalist logicians sever the logical relations among the terms of the judgments from the real relations among things.

There were idealist logicians who attacked Aristotle's substantialist logic, directing their main blow at the materialist interpretation of negative judgments [66].

[65] Formalist logicians, subjectivists as well, dissolve the gnoseological content of judgments into their logical form, and cover the problem of true or false thinking with that of the affirmative or negative form of this reflection.
"... The terms 'true' and 'false' refer to nothing, their role in the sentence is only that of signs of assertion or of negation", A. J. Ayer writes (*Langage, vérité et logique*, Flammarion, Paris, 1956, p. 122). As a matter of fact, thinking can formulate both false affirmative judgments and true negative judgments.

[66] As a matter of fact, metaphysicians have never approved of the role of negation in the development of things and ideas. They have completely removed the objective content from the notion of negation. They consider that to negate is to nullify. As negation is actually always *determined*, it has also a *positive* side. By slowing down the response to a stimulus, inhibition does not leave the organism unarmed before

Christofor Sigwart holds that negation does not belong in things, which, according to him, are but sets of sensations; it is added to them from the outside by thinking which is able to compare. He thinks that a judgment is no judgment about reality, but judgment about judgment. Blaming Aristotle for having admitted, alongside of the existence of various inter-relations of things, also *the lack* of inter-relations among things, Sigwart refutes the classification of judgments into affirmative and negative, and concludes that there can be no negative correlation but only negation of a correlation. In Sigwart's opinion, the judgment "S is not P", merely abridges the judgment "It is not true that S is P" [67].

Wilhelm Windelband claims that classification of judgments into affirmative and negative has no theoretical validity, it has only a practical one. From a theoretical point of view, according to W. Windelband, a judgment is a combination of representations that imply neither affirmation nor negation. Only from a practical point of view, when the knowledgeable subject approves or disapproves of this combination, negation or affirmation appears. Therefore, formation of a judgment would imply two moments: "the theoretical moment" of the combination representations and "the practical moment" of approving or disapproving this combination [68].

Hermann Lotze also believes that judgment as such is neither affirmative nor negative, but an idea-question. To him, affirmation and negation are by-thoughts, unconnected to the very essence of judgment whose role is only to prove or disprove the judgment as such [69].

It is true that a negative judgment denotes the real lack of a connection, by negating an affirmative judgment which reflects especially this connection; but this situation, which is specific of negative judgments, does not entitle us to take the negative judgment as a judgment about another judgment or as an appreciative judgment. This is the more so as any negative judgment opens thinking the path to an affirmative judgment, which is superior to the affirmative judgment it negates.

If, from the standpoint of the quality of logical connection, thinking passes from affirmative judgments to negative judgments and onto affirmative judgments whose gnoseological value is higher than that of the affirmative judgments they have started, from the viewpoint of the character of the predicate, thinking gradually traverses substantial, attributional, predicational and relational judgments.

the environment; on the contrary, it enhances its adaptability. Man is the only being capable of saying: NO! to matter. But by opposing nature, man does not destroy it, he masters it.

[67] Chr. Sigwart, *Logik*, I, Tübingen, Mohr, p. 162 ff.

[68] W. Windelband, *op. cit.*, pp. 52—57.

[69] H. Lotze, *Logik*, Ed. Meiner, 1912, p. 61.

From substantial judgments that denote still indistinctly the distinctive reality of a particular thing, thinking passes on to attributional judgments which reflect distinctively a particular characteristic of that thing. It is significant that in the beginning, attributional judgments assumed comparative form and continued to have a substantial, even individual, notion as predicates. In the minds of primitive people the judgment "this thing is hard" was replaced by the judgment "this thing is like this stone", or the judgment "this thing is round" was replaced by the judgment "this thing is like the broom".

After having succeeded in logically severing the characteristics of things from the things evincing these characteristics, and the actions of things from the things in action, thinking succeeded in formulating attributional and predicational judgments proper. Only much later did thinking come to relational judgments.

As a matter of fact, the things and their actions come first, and only afterwards the inter-relations among things or the various stages of development of the same thing. The self-relations between the things and their characteristics, or between things and their actions are prevalent over the heterorelations among different things or among the different stages of development of the same thing.

That is why in thinking apophantic judgments came first, and only afterwards relational judgments.

Since there cannot be relations without supports, apophantic judgments where thinking concentrates on the predicate, which tends to denote the essence of things, prevail over relational judgments, where thinking concentrates on relations, which denotes the relations among things. Since the self-dynamics of things prevails over their inter-relationships — the things enter various inter-relationship due to their self-movement — the predicational apophantic judgments, which reflect the dialectical unity between the identity of things and their self-differentiation, prevail over the relational judgment, which denotes relations among already differentiated things.

Besides, a relational judgment always derives from a predicational judgment. "This is a man", "This man is a reader", "This man reads" and "This man reads a book". Here is the path traversed by thinking, through apophantic judgments up to the relational judgment [70].

[70] It is interesting to note that before reaching relational judgments, thinking reflected the dialectical unity between the individual and the general by substantial and attributional judgments, and the dialectical unity between the relative stability of the quality of things and the absolute self-transformation of their quantity through predicational judgments. By denying thinking all possibility to understand processes, time, duration, Bergsonians ignore the cognitive role of predicational judgments.

Many contemporary logicians who postulate the agnostic idea whereby the essence of things is incognizable oppose a non-Aristotelian logic to Aristotelian logic and attempt to substitute a logic of relations for an appophantic one. Since the essence of things and their laws of development cannot be known, there is nothing more natural than to reduce thinking down to mirroring the quantitative relations of co-existence and succession between the various sets of sensations commonly called — in a "non-critical" way — individual things. "To steadily clarify an intuitive and confuse experience: that is its task. Without the work of intelligence, there would be no light, without this intuitive experience there would no longer be an object for this light to focus" [71], A. Darbon writes. Therefore, thinking does not have the task to discover the essence of things, it should only classify sensory experience. How? The French logician Louis Rougier provides the answer: "A physical theory is to symbolically order a field of facts. Other orders are not excluded. A theory is never univocally and ontologically true" [72]. Thinking must be made to do only with the most convenient arrangement of sensory experience following the setting-up, by means of propositions, of constant relations, which, even though any time being refutable, enable an approximate forecast of future experience. And since the phenomenal, individual, accidental, quantitative side of things is precisely their computable, mathematical side — this logic of quantity tends to replace the old logic, viz., "the mathematics of quality". "Mutual assimilation of logic and of mathematics is particularly clear in the field of quantity", Jean Piaget writes [73].

Contemporary subjectivists, who strive to make thinking turn its back on the essence of things and the causes of their development, are better served by this disqualifying quantitization of the world. "Mathematics provides the image of freed thinking; that is why it is the favorite field of modern logic and that is why it is a model to it" [74], Charles Serrus says.

What Serrus understands by "freeing" thinking is obvious in the same paper. "With the logical debasing of the subject, a large part of this substantialist illusion vanishes, this illusion maintained with the Westerners by the forms of their language and logical relativism becomes self-conscious as an expression of the nature of thinking" [75].

[71] André Darbon, *op. cit.*, p. 197.

[72] Louis Rougier, "L'évolution du concept de raison dans la pensée occidentale", in *Dialectica*, nos. 43/44, 1957, pp. 321—322.

[73] Jean Piaget, *Traité de logique*, p. 21.

[74] Charles Serrus, "Le prédicat dans la logique de l'inhérence et dans la logique de la relation", in *Travaux du XI^ème Congrès int. de philos.*, vol. VI, Paris, 1937, p. 56.

[75] *Ibid.*, p. 56. "With the Greek language, the language of abstraction was born", Louis Rougier thinks, *op. cit.*, p. 307.

Therefore, Serrus is glad of getting reason "freed" from the "tyranny" of reality and of the historically established national languages. But if materialism, which Serrus calls substantialism, has never been an illusion, subjectivist idealism, that Serrus refers to as logical relativism, is undisputably an illusion, not even subtler than that of Kant's pigeon who believed that it could have flown far better if air had not opposed it. Thinking is always thinking of something that is independent of it.

"The relational universe of science", Raymond Bayer thinks, "definitively replaces the qualitative and substantialized universe of conceptual realism" [76].

But science tends to know the world such as it is: qualitatively-quantitatively. It must know ever more *accurately* the *quantitative* side of things to get to know ever *deeper* the quality of things. The very quality of things gets manifested through quantity. Human knowledge cannot do with measuring the quantity of things. "We", Pius Servien says, "however, admit that an undistorted representation of the world of chance with the help of mathematics is impossible" [77].

However, relational judgments where the predicate freed itself from the rule of the subject and became its equal, pushed thinking toward reflection of quantity. Until then, thinking has always been faced with the existence, the characteristics and actions of the same things. Through judgments of relation thinking discovers the existence of links between *two* utterly different things. Thus, thinking discovers, little by little, the correlation between one acting thing and another thing acted upon, between a bigger and smaller thing, between a nearer and more distant thing, etc. All these essentially different things, have still something in common, which as it is only natural, can by no means be their qualitative identity, but, on the contrary, their quantitative identity. The correlation between these qualitatively different things is possible only because both relates have a particular constancy, particular magnitude, particular position, etc... After it had discovered the existence of things, thinking understood first the qualitative identity of the various kinds of things and then the qualitative identity of the various things of the same kind.

Thinking has thus succeeded in passing from mirroring *one* thing to mirroring *two* things. Without this progress of thinking, reflection of several things of the same kind would have been impossible. We should not forget that to go beyond mirroring a thing by means of relational judgments and to surpass the stage of mirroring two things by means

[76] Raymond Bayer, "L'évolution de l'intelligence et les formes modernes de la dialectique", in *Dialectica*, nos. 43/44, 1957, p. 304.

[77] Pius Servien, "Sur les nouveaux modes de pensée introduits par la physique quantique", in *Actes du XI^ème Congrès int. de philos.*, vol. VI, pp. 160—161.

of particular judgments were perhaps the most difficult problems of human knowledge throughout its history.

Herman Meyer believes that "... man is an animal endowed with the faculty of shaping singular judgments..." [78], and only that. Referring to Joseph Dopp [79], Meyer writes: "According to him, the singular judgment is confined to describing a singular subject (or *suppôt*, member of a community) which *exists*. We would rather say that if the subject exists, it is the only one to check the singular judgment. Therefore, the singular judgment "The man on the Moon is short-sighted" is true, because there is no other man on the Moon, whereas the singular judgment "the prime and even number is purely imaginary" is false since there is one single prime and even number which is a real number" [80].

In Meyer's logic, the difference between a "singular judgment referring to an nonexistent object and a true singular judgment referring to an existing object disappears, since false can be only a judgment running counter either to sensory experience, or to the definitions adopted. A logic where the major place is no longer held by the subject, but by relations "... setting out from *relations* instead of *properties*..." [81] cannot but accept judgments about individual things, viz., singular judgments, because universal judgments have the genus of individual things, i.e. their general properties as subject.

However, the capability to develop singular judgments is not characteristic *par excellence* of human thinking but especially its capability to develop universal judgments, its capability to mirror not only what is attained but also what is attainable, that is not only the real, but the possible, too. A universal judgment shows either the essential characteristics of all the things of the same kind, if it is apophantic, or a particular necessary relation among things of different kinds, if it is relational. A universal judgment refers not only to all the things that were and still are, but to all the things of the same kind that will be as well.

Formalist logicians confine themselves to defining the universal judgment as a judgment where the predicate is referred to the whole sphere of the subject. Such a definition leaves unsolved at least two problems: first, by showing the difference between universal and particular judgments it does not show the difference between universal and singular judgments. And in a singular judgment, the predicate is referred to the whole sphere of the subject. Then, the definition does not specify if the predicate of

[78] Herman Meyer, *op. cit.*, p. 48.
[79] *Ibid.*, p. 43.
[80] *Ibid.*, p. 48.
[81] *Ibid.*, p. 43.

the universal judgment refers to individual things as a whole or to a kind of individual things.

In the history of logic, the question of the relation of the subject to the predicate of a universal judgment was given two opposite answers, equally false because one-sided: one rationalist and the other empiricist. Rationalists held that a universal judgment refers only to kinds, the individual things we come to know by means of the senses, being only imperfect, temporary and worthy of contempt replicas. Empiricists, on the contrary, held that a universal judgment could be only the sum of all singular judgments about each separate individual thing. To empiricists, universal judgments can be but *total* judgments. A judgment claiming to say more than the singular judgments it consists of can be but a working hypothesis refutable at any time. "For instance", A. J. Ayer writes, "*p* is a law of nature" is equivalent to "*p* is a general and always reliable hypothesis", but the associations of the symbol "law" are such that the first statement tends to induce a psychological effect quite different from that of its equivalent. It accounts for belief in the order of nature, even in the existence of a power 'behind' this order unawakened by the equivalent statement... ..." [82]. In the opinion of Ayer, "to be rational" is to be somehow guided by past experience [83].

Empiricists only admit of the existence of the individual, even though reducing it, too, to the sensory complex mirroring it. Therefore, if the general does not exist, universal judgments should be content with mirroring common, obviously random characteristics, belonging to all individual things recorded. "But if man means only individual men, if it is no more than a name given to all these people on account of certain characteristics that they all share, what becomes of John Thompson's essence?", John Stuart Mill asks himself [84]. "An essential proposition", Mill answers further on, "is therefore a purely verbal proposition which ... brings nothing or it only brings something relative to the name and not to the object" [85].

Today, the advocates of logical empiricism — "logical" because, unlike the empiricists toward the end of the past century, contemporary empiricists, by joining Mill to Leibniz and Kant, attach outstanding importance to logic — divide judgments into synthetic propositions, referring to individual facts which can be no more than total, and analytic or tautologic propositions, referring to the terms used which can also be no more than

[82] A. J. Ayer, *op. cit.*, p. 93.

[83] *Ibid.*, p. 64.

[84] John Stuart Mill, *Système de logique déductive et inductive*, I, Alcan, Paris, 1909, p. 126.

[85] *Ibid.*, p. 127.

axioms, principles, postulates, definitions, or their consequences, conventional, arbitrarily chosen and nullifiable any time. "A judgment is analytic if it is inferrable only from the definitions and the principles of logic" [86], Heymans points out.

Therefore, the supporters of logical empiricism deny thinking the right to pass from particular judgments to universal ones. In the last analysis, there are but particular judgments referring to facts and linguistic conventions, referring to the symbols used. From their point of view, analytic and synthetic judgments are absolutely heterogeneous. According to them, between analytic and synthetic judgments there is no correlation whatsoever, and universal judgments proper are inconceivable.

Logical empiricism forbids thinking to venture "beyond" mirroring individual things. "... The philosopher's role is not to devise speculative theories requiring validation through experience, but to bring to the fore the consequences of our linguistic usages" [87], A. J. Ayer decides.

If analytic judgments are universally valid for Kant's transcendental apriorism they are any time replaceable with other more convenient ones, to the conventional apriorism of neopositivism, because of their conventional origin.

Neopositivistic logicians agree that experience can disprove a synthetic judgment any time, but it can never disprove an analytic one. They do not ignore the fact that synthetic judgments are only probable, whereas analytic judgments are certain by definition. Only that, in their opinion, the certainty of analytic judgments is not derived from the universal character of these judgments, but from their conventional character. "The principles of logic and of mathematics are universally true only because we never allow them to be otherwise" [88], A. J. Ayer states. And Ch. Perelman, referring to the common scientific language, established precisely by such analytic judgments, writes: "since a language is neither necessary, nor arbitrary, its use is subsequent to some argumentation, at times explicite, but in most cases implicite, when its use appears traditional" [89].

As a matter of fact, analytic judgments are always *universal*. They are no mere linguistic conventions, doomed to stay forever untested, but qualitatively superior judgments having succeeded to go *beyond* immediate experience. The fact that experience can never disprove an analytic judgment is not in the least due to the logical gap between any analytic judgment and experience; on the contrary, it is due to the cognitive value

[86] Heymans, *Zeitschrift für Philosophie und philosophische Kritik*, t. XCVI, pp. 161—162 (1889), quoted by A. Darbon, *op. cit.*, p. 4.

[87] A. J. Ayer, *op. cit.*, p. 189.

[88] A. J. Ayer, *op. cit.*, p. 105.

[89] Ch. Perelman, *op. cit.*, p. 33.

of analytic judgments illustrating the essence of all the things of the same kind that people may have to do with [90]. In an analytic judgment the predicate is contained in the subject, since the essence that the predicate reflects is contained in the thing mirrored by the subject. In a synthetic judgment, the predicate is added from ouside to the subject, as the characteristic shown by the predicate is not essential to the thing denoted by the subject. On passing from synthetic judgments to analytic judgments, thinking passes from mirroring a characteristic occassionally common to several things, to mirroring an essential characteristic necessarily shared by all the things of the same kind. Whereas a synthetic judgment can be at most total — all S are P, an analytic judgment is always universal — any S is P.

The course of thinking from particular synthetic judgments to universal analytic judgments is through a logical leap whereby thinking succeeds to mirror not only reality, but possibility as well.

From the undistinctive assessment of the existence of a particular thing, thinking rises to the distinctive reflection of a characteristic common to several things and succeeds in mirroring a characteristic essential to a whole kind of things. Therefore, thinking proceeds from singular judgments to particular judgments and onto universal judgments. Then, it reverts to the thing the existence of which was assessed by it at the beginning, identifying it, only this time distinctively. Let us roughly follow such a course of thinking: this is a man, this man is like this stone, this man is strong, this man is not strong, this man is running, this man is not running, this man climbs the tree, this man is black, these men are black, all these men are black [91], every man is mortal, if a man, he is mortal, mortals are people, or animals, or plants, this is a man, whoever is capable to consciously change his environment is a man, this is a man because he is able to consciously change his environment.

From the indistinctive tautology at the beginning of this course to the rigorous definition ending it up, thinking has gradually rose from synthetic to analytic judgments, from reality to possibility judgments onto necessity ones, or in a Hegelian language, from existence to reflection judgments onto necessity ones. From the original assessment of the existence of a thing to its definition, thinking self-develops due to the internal

[90] I obviously think of what can be understood by analytic judgments within materialist-dialectical logic and not of what is understood by analytic propositions in the idealist-subjective formalist logic. Formalists may build coherent systems of organization of sensory experience setting out from any kind of axioms, principles or definitions. In their opinion, logic does not observe any ethics.

[91] This judgment appears as normal to any member of a tribe of Negroes which has not come across a white man yet.

contradiction between the subjects and the predicates of the judgments it goes through. As soon as thinking has succeeded in surpassing the indistinctive reflection in the beginning and proceeded to mirroring the various characteristics of the thing concerned, the predicates of the ensuing judgments are in opposition to their subjects, pushing thinking toward definition and toward the identifying syllogism [92].

As opposed to the elementary classification of judgments, confined to the juxtaposition of the various kinds of judgment and to the study of their logical structure, the dialectical classification of judgments hierarchizes the various kinds of judgments according to their gnoseological value and follows up the process whereby thinking passes from a lower to a higher judgment.

Sure, materialist elementary logic, too, does not overlook the gnoseological *content* of each sepaate kind of judgment. But materialist dialectical logic is not confined to stating the gnoseological content alone, it also considers the gnoseological *value* of these kinds of judgments.

Within elementary logic, the same judgment can be seen in the light of all the classifying criteria. For instance, the judgment: "This lamp is lit" is affirmative from the viewpoint of copula quality; it is predicational from the viewpoint of predicate quality, singular from the viewpoint of subject quality, categorial from the viewpoint of predicate-to-subject correlation and assertoric from the viewpoint of the modality of this relation.

However, within dialectical logic an existential judgment can only be an existential judgment, since it has a gnoseological value inferior to the other kinds of judgments.

Taking over the Aristotelian classification of judgments, completed with the hypothetical and disjunctive judgments discovered by Theophrastus and Eudaemos, Kant classified judgments as follows: *by quality* into affirmative, negative and infinite, *by quantity* into singular, particular and universal, *by relation* into categorial, hypothetical and disjunctive, and *by modality* into assertoric, problematic and apodictic. Hegel fully took over the Kantian classification of judgments including in the group of existential judgments Kant's judgments classified by a quality, in the group of reflexive judgments Kant's judgments classified by quantity, in the group of necessary judgments Kant's judgments classified by relation and in the group of conceptual judgments Kant's judgments classified by modality. But the

[92] Unlike this dialectical classification of judgments originating with Hegel, too, the Hegelian classification of judgments does not take account of existential judgments differing not only from the viewpoint of the copula quality but from that of the predicate quality as well, ignores the significance of relation judgments and mistakes conceptual judgment for value judgments.

Hegelian classification of existential judgments is not confined to stating the quality of judgments, it also states their low gnoseological value, drawing attention to the fact that the predicate of an existential judgment shows an accidental characteristic. In classifying reflexive judgments Hegel refers not only to the quantity of judgments, he also stresses their enhanced gnoseological value, showing that the predicate of a reflexive judgment denotes a characteristic common to social things. The Kantian classification of judgments from the point of view of relation is wholly included in the Hegelian classification of necessity judgments, but the Hegelian classification also points to thinking having drawn even nearer to knowledge of the essence of things since the predicate of a necessary judgment denotes an *essential* characteristic which is *necessarily* common to all the things of the same *kind*. Finally, the Hegelian classification of conceptual judgments overrides the Kantian classification of modal judgments, emphasizing that the predicate of a conceptual judgment conveys the very essence of the thing.

The Hegelian classification follows up the course of thinking from the singular, existential, affirmative and attributional judgment to the universal, affirmative, conceptual and substantial judgment. Hegel follows step by step how thinking, on the low gnoseological level of existential judgments, discovers, by passing from an affirmative to its negative judgment, the accidental character of the subject-to-predicate correlation. Then, he claims that thinking comes to an infinite judgment — such as: "A rose is not a camel" which brings it back to the original tautology "A rose is a rose". By discovering that transition from existential to reflexive judgments is by a logical leap, because quantity judgments appear, Hegel considers how thinking rises to total judgments, where thinking does not know yet if the subject-to-predicate correlation is accidental or necessary."This generality is therefore but a summation of the individuals each of which exists *per se*; it is a community they participate in under favor of comparison" [93], Hegel specifies. Hegel understands that the great logical leap is that of thinking when passing from reflexive to necessity judgments, the moment when "... the expression: *all the people* is changed to *man*" [94].

If in the categorical necessity judgment, the necessary correlation of subject to predicate is not obvious yet, in the hypothetical necessity judgment it comes out in full light: "If you are a rose, then you are necessarily a plant, too". Engels transcends the Hegelian spirit when illustrating the hypothetical necessity judgments. The judgment: "If the sun rises above the horizon, the day begins" is a Chrysippian, not Hegelian, hypothetical

[93] G. W. F. Hegel, *Science de la logique*, transl. S. Jankélévitch, t. 2, Aubier, Paris, 1949, p. 328.

[94] *Ibid.*, p. 332.

judgment. In Hegel's logic, the hypothetical judgment is an apophantic, not a relational, judgment. By opposing them, Hegel's logic is of the same kind as Aristotle's and Kant's and totally alien to the logic of Chrysippus. Whereas in Hegelian logic, the Hegelian structure of the hypothetical judgment is: *if there is the individual, then there is the general, too*, in Chryssippus' logic, the categorial structure of the hypothetical judgment is as follows: *If there is the cause, then there is the effect, too*. The first proceeds by virtue of the *unity* between the individual and the general, the other is in keeping with the *relation* of cause to effect. The cause-to-effect correlation is as necessary as the unity between the individual and the general is. An apophantic hypothetical judgment differs from a relational hypothetic judgment not by their necessity and universality, but by the former being *atemporal* and the other *temporal.*

Through disjunctive judgments which, as a matter of fact, are conjunctive in Hegel's logic, the necessary correlation of subject to predicate is reversed to allow the genus to display all its species and thinking to discover the specific difference of the subject. The judgment: "if it is amphibian, than it is lepidosiren as well" becomes the judgment: "lepidosiren is either fish or amphibian".

The steadily better agreement between subject and predicate, being completed while thinking comes nearer to conceptual judgments, ends up from the point of view of extension in disjunctive judgments. Fishes and amphibians make up the whole genus of lepidosiren. Thinking is left nothing but to complete this agreement also from the viewpoint of comprehension. Hegel believes that thinking succeeds in doing that the moment it reaches the level of conceptual judgments which, in his opinion, show "... that the thing, confronted with its general concept, does or does not agree with it" [95]. Referring to the significance of conceptual judgments — this apex of self-development of judgments—Hegel writes: "It will be difficult to admit that existential judgments like: the rose is red, the snow is white, etc., are proof of a high judging capability. *Reflection judgments* are rather *propositions.* In the necessity judgment, the object is sure to exist in its objective generality, but in the judgment we are going to consider now, there is the relation to the concept" [96].

If in an assertoric judgment of the kind: "The house is good", agreement of the object to the concept is still implicit, it is rendered explicit in the problematic judgment: "This house, provided it has the characteristics a, b, c, d, is good and becomes, through the apodictic judgment the enthymeme of a categorical simple syllogism of the first figure, Barbara

[95] G. W. F. Hegel, *op. cit.*, p. 341.
[96] *Ibid.*

mode: "This house, having the characteristics a, b, c, d, is good". It is natural that the appearance of the mean term "which has the characteristics a, b, c, d" should have changed the judgment to a syllogism.

According to Hegel, a conceptual judgment is always a value judgment. "Such a judgment", Hegel writes, "thus contains actual appreciation; the predicates good, bad, true, accurate, beautiful, etc., show that the thing... is or not in conformity with (its concept)." [97]

Hegelian logic in the full light cast by dialectical materialism reveals both its great merits and its serious deficiencies. Following the development stages of the absolute Idea, Hegelian logic nullifies the theory of thinking, overlooks existential judgments differing among them from the viewpoint of the predicate, looks down on relational judgments content with the Kantian classification of apophantic judgments and mistakes conceptual judgments for value judgments.

The fact that Hegelian logic strove to excel Kantian logic alone allowed neopositivists to work out, this time in an idealistic-subjective spirit, hence in a spirit even more alien to materialism, the theory of relational judgments and the fact that it does not distinguish between value and conceptual judgments allowed Neo-Kantians to develop, also in an idealistic subjective spirit, the theory of value judgments.

Neopositivistic logicians attach particular importance to hypothetical relational judgments since they, by referring to relations among various individual phenomena and not to the unity between phenomenon and essence, or between the general and the individual, wholly suit nominalism[98]. To them hypothetical judgments are either mere hypotheses "true unless otherwise proved" which refer to coexistence or succession of particular sensory complexes, or mere conventions serving the systematic arrangement of sensory experience.

Setting out, for instance, from the principle, that they consider conventional, according to which if there is A, then there is B too, logicians enable thinking to move freely among all the other possible combinations, forbidding it only to pass from affirmation of A to negation of B. Therefore, out of the judgments:

$$A \rightarrow B$$
$$\overline{A} \rightarrow B$$
$$\overline{A} \rightarrow B$$
$$A \rightarrow B$$

only the fourth is false.

[97] G. W. F. Hegel, *op. cit.*, p. 341.

[98] "In a word: *the idea of predicative knowledge no longer suits scientific knowledge in our time*" (F. Gonseth, "L'unité de la connaissance scientifique", in *Travaux du IX^ème Congrès int. de phil.*, t. IV, 1937, Paris, p. 65).

Not to be somehow taken for reflecting particular necessary relations among things, hence for being universal, they are illustrated as follows by logisticians:

If $2 \times 2 = 4$, then snow is white.

If $2 \times 2 = 5$, then snow is white.

If $2 \times 2 = 5$, then snow is black.

If $2 \times 2 = 4$, then snow is black.

Out of the above four judgments, the first three are true, the fourth is false. Why? Because the system was built starting from axioms whereby truth *only* implies truth, whereas false *also* implies truth. Here is the diagram of the system:

$$T. \rightarrow T.$$

$$F. \rightarrow T.$$

$$F. \rightarrow F.$$

$$T. \rightarrow F.$$

Out of these four judgments where T. means "true" and F. "false", the first three are admitted, the fourth rejected.

Why this axiom and not another? Because this proved to be the most convenient in the difficult work of arranging sensory experience, positivist logicians answer. And why did this axiom prove to be the most covenient ? To this question, there is absolute silence, for it is taken by positivistic logicians as unscientific, metaphysical, utterly meaningless, so long as, in principle, it cannot be answered.

However, it is not difficult to dialectical materialism to answer it. The axiom, according to which truth implies only truth, whereas false also implies truth, does no more than mirror a real and necessary relation, that people came across billions of times in their social practice: the cause-to-effect correlations. In the same conditions, the same cause always induces the same effect, but the same effect is not always governed by the same cause.

$$C \rightarrow E$$

$$\overline{C} \rightarrow E$$

$$\overline{C} \rightarrow \overline{E}$$

$$C \rightarrow \overline{E}$$

Of these judgments, where C is a particular cause and E — a particular effect, the first three are permitted, the fourth forbidden. If there is the

cause then there is the effect, too, if the cause is missing then the effect may be or not, but if there is the cause then it is impossible that the effect does not exist. That is why the last judgment is necessarily false.

Therefore, the convenience of this axiom necessarily springs from its universality. Investigating the coherence of a system continues to be the permanent task of any logic. Much has been lately made in this respect and philosophers, too, have some merit in it for they reduce unilaterally truth to coherence.

But the central task of logic remains the study of laws whereby adequate rational reflection of reality proceeds.

The question of value judgments was and still is a field particularly propitious to subjective idealism. Values only become obvious if referred to people. That is why it is more convenient for subjective idealists to refute the objectivity of values rather than of things. Suffice it to confuse the *existence* of values with their appraisal. "A value exists — as value — as soon as it is considered as such, even though by an unconforming subject..." [99], the idealistic aesthetician E. Dupréel writes.

A value judgment is a judgment whose predicate is a value. The major types of axiological judgments are: *This idea is true*, *this deed is good*, and *this work is beautiful*. No doubt, here are axiological relational judgments, as well, but they always derive from predicational axiological judgments. The judgment: "X is more valuable than Y" implies the judgment: "X and Y are valuable".

W. Windelband thought that value judgments were not judgments about the world of representations, but judgments about judgments. "All the predicates of judgments are positive representations which, relative to the represented world are notions of kind, characteristics, actions, states, relations, etc. A thing is an object, large, strong, sweet, etc. moving, pushing, at rest, producing other things, etc.

However, all the predicates of judgments about judgments denote agreement or disagreement, the displeasure of the representing consciousness; a thing is pleasant or unpleasant, a notion is true or false, an action is good or bad, a sight is beautiful or ugly, etc." [100].

In Windelband's logic, existence judgments refer to the cognitive side of sensitivity, and value judgments render the affective side of sensitivity. The former record the representations, the latter appraise the recordings. The former state, the latter appraise.

According to Windelband, existence judgments, too, do not refer to the very represented reality, but only to the representation of the very represented reality, only to the representation of reality. Therefore, value

[99] E. Dupréel, "Consistence et Valeur", in *Dialectica*, nos. 43/44, 1957, p. 351.
[100] W. Windelband, *Präludien*, Tübingen, Mohr, 1907, p. 53.

judgments, that Windelband considers as judgments about judgments alone, refer even less to reality.

"*This is good* means almost always, even if not expressed: this is good to me, to you, to him, to a particular determined being" [101], Edm. Goblot specifies.

Objective idealism, too, was not indifferent to the problem of values. With Lucian Blaga, for instance, values "are, on a metaphysical level, the outcome of a propensity of the Great Anonymous to isolate us from mysteries... its *raison d'être* lying in the common interest to save existential centralism" [102].

Piu Şerban Coculescu — today the French idealist philosopher Pius Servien — also claims that "... we do not truly honor but by ignoring" [103].

But the prevalent trend in the question of values in non-dialectical philosophy nowadays continues to be subjective idealism. "Value pertains to refinement... It is the commendatory meaning of the word *quality*... ... Value is always a success..." [104], Raymond Bayer writes. In other words value is added to the object by the appraising subject. Therefore, the subject does not appraise a value existing independently of its appraisal, it is appraisal itself that creates it. Value does not belong to the object, it resides in the subject-to-object correlation, it appears as a relation between subject and object.

The idealistic-subjective interpretation of values was pushed onto its ultimate consequence by neopositivism. "Adding that this action is bad, I formulate no other judgment about it, I only state my disapproval..." [105], A. J. Ayer writes. In Ayer's opinion, the function of the axiological predicate in a value judgment is purely emotional.

Setting out from John Stuart Mill's idea that the reality of a thing is no more than a permanent possibility of sensations, the French sociologist Celestin Bouglé concludes that "a value is an uninterrupted *possibility* of satisfaction" [106]. But Bouglé takes a step forward toward value objectivity. "We seek beyond individual consciences the source of authoritativeness that values are vested with" [107]. He comes to the conclusion

[101] Edmond Goblot, *La logique des jugements des valeurs*, Arm. Colin, Paris, 1927, p. 6.

[102] Lucian Blaga, *Artă şi valoare* (Art and Value), Bucureşti, 1939, p. 197: "... Stylistic values are moments whereby we are prevented from being substituted for the Great Anonymous".

[103] Piu Şerban Coculescu, *Introducere la un mod de a fi* (Introduction to a Way of Being), Craiova, 1927, p. 13.

[104] Raymond Bayer, *Traité d'Esthétique*, Arm. Colin, Paris, 1956, p. 102.

[105] A. J. Ayer, *Language, vérité et logique*, Flammarion, Paris, 1956, p. 150.

[106] Celestin Bouglé, *Leçons de sociologie sur l'évolution des valeurs*, Arm. Colin, Paris, 1922, p. 19.

[107] *Ibid.*, p. 33.

that "to understand the kind of authoritativeness peculiar to values, it is important to understand first how *collective consciousness* evolves and acts" [108].

However, the French sociologist says nothing of the class *character* of this "collective consciousness", for a collective consciousness beyond classes is impossible in a society split into antagonistic classes.

Chernyshevski drew nearest to understanding the class roots of collective consciousness, "... people in the high society, who do not know material needs and physical exhaustion, are often tired by their own laziness and lack of material works, seeking out strong feelings, emotions, passions, adding colour, variety and charm to fashionable life, so monotonous and colorless" [109].

However, Marxism was the first in the history of philosophy to provide a scientific explanation of collective consciousness. Over the lapse of time which separates the primitive commune splitting into antagonistic classes to the building of the communist society, collective consciousness can only be the consciousness of a particular social class at a particular stage in its historical development. "... an art outside classes (will be possible only in the class-free socialist society)", Lenin points out [110]. And value seems to be the quality of those materialized ideas and of those actions contributing to the necessary development of society. Lenin revealed the very essence of contemporary values in showing that "... moral is what serves the destruction of the old exploiting classes and the rallying of all those who work close to the proletariat to build the new communist society" [111]. A progressive social class, interested to the highest extent in renewing reality such as it is and in acting as historical necessity may require, will welcome the judgments mirroring reality, the actions that push society forward and the works of art moving people's souls the way history itself moves. On the contrary, a reactionary class will ultimately consider that any judgment on reality is meaningless, that all actions are equivalent since they are equally doomed to failure and that all works of art can be but the interjection of an irremediably lonely soul cast in the world.

Only the consciousness of a progressive class can appreciate values properly, because only the consciousness of a social class history itself promotes is attracted by genuine values. The goal of such a class is not the ideological modality that social causality is manifest in. It is through people's consciousness that values turn into aims, too. Social determinism

[108] *Ibid.*, pp. 27—28.

[109] N. G. Chernyshevski, *Arta şi realitatea din punct de vedere estetic* (Art and Reality from an Aesthetic Point of View), Cartea Rusă, 1952, p. 37.

[110] V. I. Lenin, *Despre literatură* (On Literature), p. 10.

[111] V. I. Lenin, *Despre tineret* (On Youth), E.T., 1956, p. 328.

also acts through the agency of goal consciousness. Consciousness of the aims of a progressive class is the clear reflection of historical necessity. Through consciousness of a progressive class, historical necessity assumes self-consciousness.

As value is the property of an idea or action to be or not to be in keeping with the law of history, it exists independently of its appraisal, it does not lie in its appraisal, but it only comes out as such while being appraised.

Positive value as the quality of being in keeping with the historical necessity of an idea or action can only be appraised as such by the consciousness of a class whose policy is equally in keeping with historical necessity. "Values severed from necessity can operate only in metaphysical imagination" [112], C. I. Gulian writes.

But the objectivity of values does not originate primarily in the socio-historical objectivity of the appraising criterion, as M. Breazu thinks, but in the very reality of the influence of values on historical development [113].

Of course, this does not mean that all the statements, works of art and stands making up the complex human activity are directly and obviously connected to historical necessity. Values are of several degrees. There are values which only *in the last analysis*, through a longer or shorter chain of intermediate links, affect social development in one way or another. Winning the moved reader over to the building of a new life is not the immediate task of a love poem. But by helping him to get a more thorough knowledge of people, it teaches him to love them and fight selflessly for their happiness.

Likewise, there are many appreciative judgments of the kind: "This coat is beautiful", or "This tea is good", showing only that some household requirements are met, and they are no value judgments proper.

That value cannot mobilize the people unless it moves them, does not in the least mean that everything that moves certain people is valuable. Those who are made to look back at the past by the normal course of history are no longer enticed by positive values, but by negative ones.

"Only endangered values are deliberately treated as values, not as forces, or things" [114], Eugène Dupréel thinks. As a matter of fact, an object penetrates into the world of values only as far as it acts as a *brake* or as a motor on the course of mankind, only as far as it urges the

[112] C. Ionescu-Gulian, *Introducere în etica nouă* (Introduction to the New Ethics), E.S., 1946, Bucharest, p. 174.

[113] See M. Breazu, "Despre obiectivitatea valorii estetice" (On the Objectivity of the Aesthetic Value), in *Cercetări filozofice* (Philosophical Researches), no. 6, 1958.

[114] Apud Emile Bréhier, *Les thèmes actuels de la philosophie*, P.U.F. 1956, p. 52.

people, by the ideas contained in it, to act in one of the two ways history goes: *forward or backward.* A positive value opposes a negative value.

Only to the extent it contains a human message can a thing be a value, positive or negative. Not the sound or written complex that a statement assumes, but the statement itself is true. Chernyshevski, who foreshadowed the class character of values, came much closer to the materialist understanding of the contradictory essence of values. Blaming the preference of the idle classes for everything that is pathological and eccentric, Chernyshevski writes that "to a man everything is beautiful which embodies, according to his anthropomorphic ideas, the notion of a healthy, prosperous and vigorous life" [115].

But if there exists the possibility that some people stick to negative values and reject positive values, which are, then, the sure means that people may use to clearly distinguish between positive and negative values?

Philosopher Antoine Terstenjac asserts that through attraction and repulsion "... not only does feeling reveal the values to reason, it also draws attention to reason on them, points to the world of values. Without this discovery and this warning, which are the exclusive realm of feelings, reason itself will never be able to logically identify the world of values" [116]. True, when faced with a thing, through the cognitive side of his sensitivity, man reflects the existence of this thing, and through the affective side of his sensitivity — its value. Sensations, perceptions and representations point to the existence of a particular thing whereas emotions, feeling and passions reflect its value.

But the emotion stirred in a communist when listening to the Internationale is diametrically opposed to that in the soul of a fascist. The proposition: "All the roads of contemporary science lead to dialectical materialism" does not stir the same feelings in the soul of every thinker. Carried away by their own feelings, conservative philosophers can no longer distinguish between an existence judgment which mirrors their aversion to a positive value and a value judgment that would seemingly reflect a negative value. Aversion does not necessarily point to the negative value. Value does not move every man, the same way. In showing just or unjust appreciation of the positive or negative values, decisive is class condition.

A waning social class is attracted by negative values. Positive values are irritating to it. "Definition is the lie of abstract spirit; the *inspired slogan*, the lie of the militant spirit..." [117], Emil Cioran swears. Positive values

[115] Chernyshevski, *op. cit.*, p. 39.

[116] Antoine Terstenjac, "Le rôle cognitif des émotions", in *Actes du XI*ème *Congrès intern. de philos.*, 1953, Bruxelles, p. 100.

[117] E. M. Cioran, *Précis de décomposition*, Gallimard, Paris, 1949, p. 30.

can never be appraised as values unless there is a class that history itself promotes. To a class deserted by history war is a good thing, peace is an evil one. Whereas war breeds the highest virtues, peace makes them decay. In their opinion, to wage wars is a virtue, to live in peace is a sin.

As a matter of fact the slogan: "Honest people all over the world, fight for peace!" is just, because it is underlain by the true necessary judgment "If the peoples take their destiny in their own hands, then peace will be safeguarded!" and by the equally true appreciative judgment: "Peace is a good thing". Unlike the existence judgment: "I like peace" showing only the affective response to peace, the value judgment: "Peace is a good thing" reflects the necessary relation between the condition of peace and the laws of historical development of society today, thereby legitimatizing the affective attraction to peace. Ethical commands directly underlain by existence judgments are not necessarily just. Correct thinking is forbidden direct transition from the existence judgment: "I like this action" to the value judgment: "This action is good" and onto the command: "Act this way!". Commands must be underlain by value judgments, not by existence judgments. But thinking cannot proceed directly from existential to value judgments. It must first discover the necessary character of the correlation between the object of affective attraction and the laws of history. As for a negative value, the value judgment mirrors the contradiction between the influence of an idea or action and the laws of history.

There are logicians who reduce to existential judgments all the optative, imperative, a.o. propositions, and who say nothing about the cognitive role of value judgments. "In my opinion", Th. Ziehen writes, "the wishes, urges, orders, requests, warnings, etc., are affirmative judgments proper, related to the consciousness of validity, but whose thetic character is not conveyed in the usual form. In the wish: 'Oh, if the sky were clear!' the assertion is the following: 'I would like the sky to be clear'. Also the order: 'Give me the book' is equivalent to the affirmation: 'I want you to give me the book'. The specificity of these wish and order judgments from the viewpoint of their content is that he who judges emphasizes his positive affectivity to an actually unaccomplished state" [118].

However, the righteousness of the slogan: "Workers of all lands, unite!" might be founded on the existence judgment: "I want the workers of all lands to unite" No! The value judgment: "The union of the workers of all the lands is a valuable action" is necessarily required as it meets a historical necessity.

Fighting against idealistic and metaphysical axiologists who ignore the relationship between existence judgment and value judgment, there

[118] Th. Ziehen, *Lehrbuch der Logik*, Ed. Marcus und Weber, Bonn, 1920, p.385.

are Marxist-Leninist researchers who tend to think lightly of the qualitative difference between them.

Refuting the attempt of Gaetan Picon to sever existence judgments from value judgments, N. Tertulian rightly holds that value judgments, too, are existence judgments, but he does not specify that value judgments are *socio-historical* existence judgments [119].

Whereas the judgment that mirrors the affective response of the subject to the object is existential, subjective and singular, the value judgment is conceptual, objective and universal. Naturally, value judgments enjoy historical, not ahistorical, universality. "The taste judgment", Marcel Breazu writes, "is not *universally valid*, as Kant would have liked it, depriving it of its objective character, it is *historically objective*" [120].

The true, the good and the beautiful are universal-human values historically achieved through relative truths, through actions and works of art that a particular social stage of development requires. "Obviously—Jean Lacroix writes — we shall always discover only particular truths; but what their value would be if we did not identify the presence and immanence of Truth therein"[121]. Jean Lacroix would be right only if he would give up the idealistic-objective conception according to which truth exists forever and is embodied in particular truths, and would admit the materialist-dialectical outlook whereby absolute truth is not yet, but it becomes incessantly, by accumulation of relative truths.

Some philosophers, metaphysicians, raise Chinese walls between these three fundamental values of man. Antoine Terstenjac does not even take truth as a value: "Phenomena", he writes, "as long as they fall outside the world of values, are only true or false; but the world of values shows us a twofold aspect: that of truth and that of value, one is given to us through reason, the other through feeling"[122].

I think there are at least two errors in the above exerpt of Terstenjac's. First, phenomena cannot be true or false, as they simply *are*, they exist as such. To say that the phenomenon of gravity is true, is as inadequate as to say that it is gay, high, wonderful or amusing.

Just like any value, truth can only belong in a thing as far as it is the embodiment of a human, scientific or artistic idea. A false thing is inconceivable. When we say that his banknote is false, we say nothing more than the proposition: "This is a banknote" is false. The French idealistic philosopher Henri Birault obviously does not share this opinion. "There-

[119] See *Viața Românească*, 1957, no. 11, pp. 138—144.

[120] Marcel Breazu, "Specificul cunoașterii artistice", in *Cercetări filozofice*, no. 1, 1957, p. 69.

[121] Jean Lacroix, *Marxisme, existentialisme, personnalisme*, P.U.F., 1955, p. 122.

[122] Antoine Terstenjac, *op. cit.*, p. 101.

fore", he writes, "the ancient formula *veritas est adequatio rei et intellectus* will be given two different interpretations: *Veritas est adequatio rei ad intellectum* if the truth of the thing is referred to, *veritas est adequatio intellectus ad rem* if it is about the truth of the proposition"[123]. However, truth is no quality of things, but of ideas denoting things. That is why truths do not rest with the object or the subject-to-object correlation either, it is only born of and emerges from this correlation.

Terstenjac also makes the mistake of ruling out the truth of the world of values.

But, just like any other value, truth is a value indispensable to social development. Terstenjac thinks that whereas values are felt, truth is only understood. However, feeling always accompanies truth to the same extent it accompanies the other values as well. The fact that the discovery of truth is always accompanied by a strong feeling of confidence has enabled the existentialists to reverse the relation between truth value and the feeling of confidence. Thus they limited the act of knowledge to an act of faith. "To believe is, thus, to refuse the absurd"[124], Jean Lacroix claims. Only that the absurd cannot be removed by an act of faith, but by an act of thinking[125]. Jean Wahl holds that the various judgments are not only accompanied by various feelings, but they also stem from these feelings. In his opinion, disappointment breeds negative judgment and hesitation generates problematic judgments. "Disappointment", he writes, "is the origin of negation, hesitation is the origin of possibility"[126].

Being the property of an idea to be like reality, truth is the value underlying all the other values. The good implies the true, and the beautiful implies both the good and true. In a progressive outlook, truth must underlie all its theses. A thesis is not revolutionary unless it is founded on the objective truth about the real and necessary trends in social evolution. A good deed cannot be contrary to truth, and a genuine work of art cannot be contrary to the true or the good either. It results that *social progress* is the ultimate value. If referred to the ultimate *goal*, all the other values are *means*.

Therefore, the value judgment illustrates the real and necessary relationship between the influence of a particular idea or fact and social process. The true, the good, and the beautiful cannot be accomplished

[123] Henri Birault, "Existence et vérité d'après Heidegger", in *Phénoménologie, Existence*, Arm. and Colin, Paris, 1953, p. 150.

[124] Jean Lacroix, *op. cit.*, p. 73.

[125] In reply to existentialists, G. Bachelard writes: "Truth is the Son of Discussion, not the Son of Sympathy" (*La philosophie du non*, p. 134).

[126] Jean Wahl, "Notes sur quelques aspects empiristes de la pensée de Husserl", in *Phénoménologie, Existence*, p. 129.

historically without some particular things or actions to concretize them. But value does not lie in the material properties of these things or actions, but in the influence of the ideas on the social development materialized by them. Bréhier writes that value "has a complex structure, which implies an appeal of the transcendent, a maker, a work and an appraiser — all indissolubly linked"[127].

Bréhier's formula would become acceptable only if by this "appeal of the transcendent" we would understand only historical necessity and if we did not relate so "indissolubly" the existence of values to their appraisal.

Mistaking value judgments for imperative propositions, the French philosopher Lucien Goldmann reaches the sophistic (not dialectical as he claims) idea that value judgments are neither true nor false, they become true or false through people's action. "Instead of a rigorous delimitation between judgments in the indicative and judgments in the imperative, which characterizes both logical and mathematical thinking, and the physico-chemical sciences, there is a unity between thinking and action in the human sciences which is capable to surpass the arbitrariness that selection of a set of value judgments so often implies..."[128].

In fact, in the materialist-historical outlook on society, value judgments are in the indicative, not in the imperative, and just imperatives always rest on true value judgments.

Hegel realized that true value judgments are conceptual judgments, but he did not realize that the reverse is false. Not all conceptual judgments are axiological judgments.

Through value judgments thinking reaches the world of categories. Values are categories. Just as the other categories, values make up indissoluble opposite pairs. A negative value is never an undetermined notion. Unlike the notion "non-mass", the notion "non-good" means only "bad". Each axiological pair is a contradictory unity ultimately mirroring the two ways history goes: *forward* and *backward*. Positive values assist social developments, negative values are a brake to it.

Through value judgments thinking thus comes to dialectical judgments.

A dialectical judgment has always two opposite predicates. But whereas the contradictory judgments "This deed is good" and "This deed is bad" cannot be both true[129], the dialectical judgment: "Every accomplishment is both good and bad" is necessarily true[130]. The first two judgments refer to a performed deed, that can no longer be, at the same time and in the

[127] E. Bréhier, *op. cit.*, p. 56.

[128] Lucien Goldmann, "Remarques sur la théorie de la connaissance", in *Actes du XI*ème *Congrès intern. de philos.*, vol. II, p. 95.

[129] It is forbidden by the law of non-contradiction.

[130] It calls for the law of contradictory predication.

same correlation, both good and bad; whereas the third refers to the performance of a deed which is not yet, but continues to become, including both the good and the bad, just as the present that it proceeds in contains both the past and the future.

Elementary judgments illustrate set up opposites whereas dialectical judgments illustrate the setting up of the opposites [131].

Whenever a metaphysician came across such a dialectical judgment he tore it apart into two contradictory elementary judgments which, no longer related to the establishment of the opposites, could not be both true at the same time and in the same correlation, since one negated precisely what the other affirmed. That is why metaphysicians thought they had solved the problem as soon as they had found that both opposite judgments were both true not at the same time and in the same correlation, but either successively, or in various correlations. But such opposite elementary judgments are no longer capable of mirroring the dialectical unity of the two opposite sides of the same thing or the dialectical unity of the two opposite moments of the same process. Two opposite elementary judgments have two opposite copulas and only one predicate, whereas a dialectical judgment has only an affirmative copula and two opposite predicates. Only a dialectical judgment can reflect the very setting-up of opposites, since it alone can ascribe two opposite predicates to the same subject [132].

Zeno attempted to understand the development of movement by metaphysics, and was confronted with two opposite elementary judgments which, by their reflecting already-developed movement and not movement in its development, were irreconcilable and conducive to the idea that movement was mere delusion of the senses. These two elementary judgments mirrored separately the two opposite aspects of movement: continuity and discontinuity, which do not exist as such, but make up the dialectical unity of becoming [133].

[131] The relation of *contrariness* between two contradictory notions in elementary logic turns into an relation of contradictoriness in dialectical logic, since the two contradictory notions are categories, such that any of them can be conveyed by a negative notion; the notions "phenomenal" and "non-essential" are identical. In elementary logic the contradictory relation turns into a relation of contrariness as soon as the negative notion of the relation is determined. In dialectical logic, the opposite relation remains unchanged.

[132] A dialectical unity is always dynamic, never static. Existence of any dialectical unity is the becoming. The dialectical unity between the two opposite predicates of a dialectical judgment does not mirror the *things* in motion, but the very *motion* of things.

[133] Bergson accused the human intellect of splitting the process, altering it, of approaching time "more geometrico" and turning it into its opposite: space; that it fails to grasp "pure duration", by ignoring the existence of dialectical thinking. Bergson

Failing to transcend the opposite elementary judgments: "A moving thing *is* at a particular place at a particular moment" and "A moving thing *is not* at a particular place at a particular moment" to come to the dialectical judgment "A moving thing is and is not at a particular place at a particular moment", Zeno concluded that the senses showing us the mixture of existence and non-existence are the source of all errors.

"The fault with Zeno's aporias therefore lies in his stating a problem pertaining to the development of movement on the level of developed movement"[134] Radu Stoichiță rightly remarks.

That the moment it is confronted with the dialectics of things, elementary thinking is in opposition with itself is also obvious from how Kantian antinomies emerged. Having reached the dialectical unity between finite and infinite, Kant was compelled to state two opposite elementary judgments, equally provable and incompatible. "The world is finite" and "The world is not finite". Indeed, these two judgments, which mirror the two opposites that *have become*, and not their very *becoming*, cannot be both true at the same time and in the same correlation. What *is* cannot be and be not at the same time and in the same correlation. Only what *becomes* can be and be not at the same time and in the same correlation. But Kant, who was attracted, on the one hand, by the real dialectical unity between finite and infinite, and held back, on the other, by the two opposite elementary judgments that he did not know how to surpass, fell into agnosticism; he devised the theory of transcendental apriorism, believing to identify in antinomies the ceiling to reason, which was striving in vain to know the incognizable, to... eat the apple of authentic knowledge. According to Kant, antinomies draw the attention of reason to its limitations. Antinomies remind reason that it cannot go beyond the phenomenal world. The thing in itself is inaccessible.

As a matter of fact, the famous "thing in itself" is no more than the real dialectical unity between finite and infinite that can be mirrored by reason through a dialectical judgment. The dialectical judgment "The world *is* both finite and infinite" whose copula does not reflect the *existence* of the developed opposites, but the development *process* of opposites, mirrors precisely the "thing in itself". Kant failed to develop a dialectical judgment out of the two opposite elementary judgments. He did not even foresee the fact that the law of non-contradiction forbids admission of only two

limited the intellect to only one of its two stages: elementary thinking. However, a dialectical judgment can reflect the very becoming of things, their "pure" duration.

[134] Radu Stoichiță, *Problema continuității și discontinuității în primele două aporii ale lui Zenon în legătură cu mișcarea* (Continuity and Discontinuity in Zeno's First Two Aporias in Connection with Movement) in *Analele Univ. "C. I. Parhon"*, Social Sciences Series, no. 8, 1957, p. 71.

opposite judgments but not of one judgment with two opposite predicates. "There seems to be nothing more clearly than that out of two, one of which holds that: 'The world has a beginning', and the other: 'The world has no beginning...', one should however be right. But if so, then, given that either side is equally clear, it is simply impossible to find which side is right, and the argument goes on as before, even though the tribunal of reason has ordered the sides to come to peace. There is, therefore, no other means, to put a final end to the argument so as to please both sides unless they, given their fascinating contesting capacity, are finally made to understand that they fight for nothing and that some transcendental appearance caused them to see a reality where there was none"[135].

Kant fails to transcend the antinomy and considers it illusive. Two false judgments can only seemingly be opposite. False cannot be opposed to false.

Actually, antinomies are no barriers of thinking in general, but only a barrier to elementary thinking. Unable to transcend elementary logic, Kant stays a metaphysician. Only in the light of dialectical logic does elementary logic no longer turn into metaphysics.

Apart from these affirmative judgments with two opposite predicates, formed under the action of the law of opposite predication, under the action of the law of determined negation, dialectical thinking also works out affirmative-negative judgments, or, more exactly, negative-affirmative judgments [136].

When Copernicus denied that the Sun moves round the Earth, asserting that the Earth moves round the Sun, he stated a dialectical judgment which mirrored the substitution of an outdated theorey for a new one closer to absolute truth. A negative affirmative dialectical judgment has two sides: a negative and an affirmative one. The affirmative part of such a judgment mirrors the new, whereas its negative part reflects the old. Real dialectical negation can be mirrored only by like dialectical judgments. The logical leap can be reflected logically by the successive, discursive illustration of the old negated quality and of the new asserted quality alone. The judgment: "The revolution is shifting of state power from the reactionary class to the progressive class" mirrors the qualitative leap from a lower political system to a higher political system [137].

The judgment: "It is not the eminences that make history, but history which makes them" shows the qualitative leap from a lower outlook on history — idealism — to a higher outlook on history — materialism.

[135] Em. Kant, *Critica Raţiunii Pure* (Critique of Pure Reason), Ed. Casa şcoalelor, Bucureşti, 1930, pp. 434—435.

[136] See also Fogarasi Béla, *op. cit.*, p. 202.

[137] A negative-affirmative dialectical judgment must not necessarily be conveyed in a sentence containing the word "no". The word "shifting" equally conveys *no* and *yes*.

Whereas a dialectical judgment with two opposite predicates mirrors the *dialectical unity* between the two opposite sides of the same object, a negative-affirmative dialectical judgment reflects the *dialectical leap* from one quality to another.

By virtue of the law of dialectical double negation, dialectical thinking builds a kind of negative-negative-affirmative judgments reflecting the process of the negation of the negation. The judgment: "Absolute truth is neither sensory concrete nor logical abstraction, but logical concrete" shows the dialectical process whereby thinking negates the sensory reflection of the real concrete, getting the logical abstractions that it constantly denies in order to advance asymptotically to the logical concrete.

Therefore, the major kinds of dialectical judgments shaped under the action of the laws of dialectical thinking are:

1. S is P and non-P.
2. S is not P, but non-P.
3. S is neither P, non non-P, but both P and non-P.

Hegel, for whom dialectics stops as soon as absolute Idea acquires self-consciousness, did not even set the question of dialectical judgments, he only analyzed the dialectics of judgments. However, dialectical materialism must pay special attention to dialectical judgments because it is through them alone that thinking can steadily draw nearer to the logical concrete, to absolute truth.

3. REASONING

The real concrete is the dialectical *unity* of the *various* properties of the thing, and abstraction is the logical form whereby the subject mirrors a certain essential characteristic of the object. The logical concrete is the infinite sum of the predicates asserted about the object shown by the subject of these countless judgments. The logical concrete is an endless array of abstractions that show the countless essential characteristics of all the things of the same kind.

But all these abstractions are ultimately no more than the predicates of both inductive and deductive conclusions.

The notion — a logical form whereby the subject reflects undifferentially the identity of the object — because of the internal contradiction between the sphere and its content, turns to judgment — a logical form whereby the subject mirrors differentially the dialectical unity between the two opposite sides of the object. Because of the internal contradiction between its subject and predicate, the judgment calls for an underlying mean term and thus turns to reasoning.

Much as the independence of the notion is dialectically negated by the judgment whose subject or predicate it is, so the independence of judgment is dialectically negated by the reasoning whose conclusion or premise it is. Notions and judgments are formed in and through reasoning. Notions and judgments are at the same time the elements and outcome of reasoning.

Notions and judgments are relatively *independent* as the same notions and the same judgments can make up various reasonings, but they are only *relatively* independent, because they cannot exist outside the whole they belong in and which is the very act of human thinking: *reasoning*. Notions and judgments are part of reasoning, even if the reasoning is implicit. Any notion is implied, undifferential, possible reasoning, much as any reasoning is an explicit, differential, developed notion.

As a matter of fact, things self-differentiate, passing from their undifferential unity to their differential unity. Through self-differentiation the possibility of an undifferential unity to become a differential unity changes to reality. Through self-differentiation, a lower unity yields place to a higher unity.

The self-differentiation of notions shows the self-differentiation of things. Thus, by negating the undifferential character of notion, judgment mediates its transformation into reasoning. Through judgment, reasoning *suppresses* the undifferentiation of notion, but preserves the mirroring of unity, succeeding in reflecting it differentially. Reasoning can mirror differentially the *whole* unity of the object since, unlike judgment, it has an additional term: *the mean term*. The superiority of reasoning over judgment is due to *the mean term*. The mean term is the pillar of reasoning. The mean term mirrors the essence of things, the cause of their self-differentiation, their laws. By its ability to use mean terms, thinking fully shows its mediated character. The specificity of thinking lies in its using mean terms.

Whoever says *Man*, thinks as follows: "This is a man, because he is a being capable of changing his environment to suit his needs and, as it is known, all beings capable of changing their environment to suit their needs are people and are called so".

Therefore, a particular being (S) is a man (P) only as far as he is capable of work (M). To put it symbolically, the *S-ubject* is *P-redicate* if there is *M-edium*.

But how "is it known" that all working things are people? The answer to this question can be found by reversing the above reasoning.

If the reasoning that has identified a man is:

All working beings are people,

This is a working being,

This is a man,

the process whereby knowledge has come to the major premise of this reasoning is:

This is a man,

This is a working being,

Some working beings are people,

All working beings are people.

Whereas the movement of thinking from judgments to judgments is called *deduction*, movement of knowledge from facts to judgments is called *induction*. Knowledge proceeds from the sensory concrete to logical abstraction and thinking proceeds from logical abstraction to the logical concrete. Through induction we make the logical leap from the concrete to the abstract, and through deduction we concretize our abstractions [138].

The real dialectical unity between the individual and the general, however, determines the gnoseological dialectical unity between induction and deduction. Induction is accomplished through an inductive act, whereas deduction is founded on induction.

Induction is the movement of knowledge from mirroring the individual to mirroring the general. Induction is the foundation of deduction. But if deduction does not exist without induction, induction, too, does not exist without deduction. Induction cannot proceed unless permanently resorting to deduction. Induction and deduction are qualitatively different, if inseparable, means of knowledge. Induction and deduction are the two sides, stages, opposite ways of human knowledge. Human knowledge is neither inductive, nor deductive, it is inductive-deductive. The dialectical unity between the two ways that knowledge goes from things to ideas and from ideas to ideas ensures the permanent reflection of the object in the subject's consciousness. The dialectical unity between induction and deduction is no more than the physiological unity between the first signalling system and the second, or the gnoseological unity between the two stages of knowledge: the sensory and the rational. Even though distinctive, induction and deduction are inseparable. But, during induction, thinking overlooks deductions conducive to induction, leaving them in the shadow and, during deduction, thinking is not conscious of the inductions underlying deduction.

Induction and deduction rest on the same ontic foundation: the real dialectical unity between the individual and the general. But whereas

[138] Obviously there is no reader to overlook the essential difference between the judgment: "This is a man" as a premise of an induction and the judgment: "This is a man", as a conclusion of a deduction. The former is definitely inferior to the latter. On the former's level, consciousness does not know yet why S is P, as it has not discovered the mean term yet.

induction, setting out from mirroring the individual toward mirroring the general, is founded on the postulate: "If all S noted so far are P" deduction, which moves on a logical plane exclusively, is underlain by the *axiom*: "Every characteristic of the general also belongs to the individual" or "If there is cause, there is effect, too". Whereas the postulate is only probably true, the axiom is necessarily true. A postulate is a more certain judgment than a hypothesis, but it is less certain than an axiom[139]. That is why induction steadily tends toward deduction. As a matter of fact, induction is no reasoning proper. Only deduction is. The phrase "inductive reasoning" is a contradiction and the phrase "deductive reasoning" — a pleonasm.

That induction does not proceed or conclude without deduction is obvious from the analysis of any spontaneous induction. Following up more closely the induction:

A.B.C.D. are people,

A.B.C.D. are working beings,

All working beings are people,

we find that every premise is the conclusion of a simple categorical syllogism of the first figure, and the conclusion itself is the conclusion of a hypothetical-categorical syllogism, ponendo-ponens mode. The syllogism:

All the beings that have characteristics 1, 2, 3 are people,

A.B.C.D. are beings with characteristics 1, 2, 3,

A.B.C.D. are people

is obviously involved in the development of the first premise. The syllogism:

All the beings having the characteristics 1, 2, 3, are working beings,

A.B.C.D. are beings with characteristics 1, 2, 3,

A.B.C.D. are working beings,

is involved in the development of the second syllogism, and the syllogism:

[139] Whereas the judgment: "If there is the individual, then there is the general too" is an *axiom*, because practice has never disproved it, the judgment: "If all S *noticed* are P, then all S are P" is a *postulate*, because practice has at times disproved it.

If all the working beings noted so far are beings, then all the working beings are people.

All the working beings noted *so far are people*,

Hence, all the working beings are people

is involved in the development of the conclusion. What should be noted by all means is that the deductions involved in the development of the two premises of induction, which are not only spontaneous, but implied as well, rely on a mean term developed outside reason's control, hence, probably accidental. Characteristics 1, 2, 3, by which the knowledgeable subject identifies A.B.C.D. as people, may be, for instance: the characteristic of adorning oneself or of covering oneself, or of having a particular skin color, etc.

The conclusion of induction, which is the conclusion of a deduction relying on the postulate of induction, can be but probable.

However, thinking cannot content itself with probable judgments. Practice requires judgments that are certain. That is why thinking continuously tends to necessary judgments. But thinking cannot switch from a probable total to a universal — which by definition can be only necessary — unless by resorting again to induction.

Thinking mobilizes every experimental research means to discover the essentiality, generality and necessity of the real relation mirrored by the logical correlation between the subject and the predicate of the conclusion of an induction.

The very moment the essentiality of a particular relation has been discovered the probable total judgment: "All S are P" becomes the necessary universal judgment: "Every S is P" and induction turns into its opposite, into a deduction. The induction:

A.B.C.D. are people,

A.B.C.D. are working beings,

All working beings are people,

becomes the deduction:

Every working being is a man

A.B.C.D. are working beings,

A.B.C.D. are people.

The so-called "reasoning by analogy" is also a deduction, since it is a reasoning and since it is actually implied in any deduction. Here is the analogy implied in the above deduction: "Just like so many working beings who are people, the working beings A.B.C.D. are people, too".

Therefore, reason is exclusively deductive, but it cannot operate without induction. Whether analytic, synthetic or analogic deductions, to reason

is to deduce. It is true that the development of induction requires continuous involvement of all forms of deduction, but within the dialectical unity between induction and deduction, induction is primordial, deduction — secondary.

This distinction is not merely terminological as it may appear at first sight. It also clears up the qualitative difference between induction and synthetic deduction. The so-called "mathematical induction" — reasoning by recurrence — is, although generalizing, one of the forms of deduction.

Idealistic logicians say that syllogism holds thinking back, since the conclusion of a syllogism, already at its start, is implied in premises. In their opinion, thinking learns nothing new from the conclusion. The conclusion, they claim, cannot add new knowledge. A syllogism whose conclusion adds new knowledge can be but a *petitio principii*, as it tries to prove the truth of a judgment assumed to have already been proved. They hold that if it is still doubtful whether Socrates is a mortal, then the assertion that all people are mortals is also affected by the same uncertainty, since it cannot be assumed to be true as long as doubt shadows one of the cases it refers to; hence it cannot be used as proof in support of the truth of a singular judgment on whose truth it must rely.

Logicians arguing this way against the cognitive role of the syllogism utterly ignore the essential difference between a probable total judgment and a necessarily universal judgment, between a syllogism whose major premise is a total judgment and a syllogism with a universal as major premise.

Indeed, the conclusion of a syllogism whose major premise is a total judgment can be either an uncertain judgment, or one of the singular judgments that the major premise consists of. But the conclusion of a syllogism whose major premise is a universal judgment is a sure judgment, whereby thinking reflects something new, learns what has been unknown yet, gets acquainted with an individual thing unknown so far, recognizing the kind it belongs to. The conclusion of such a syllogism is not a judgment implied in the major premise of the same syllogism at all. Such a syllogism is no mere explication of one of the singular judgments that has been involved in the development of its major premise. It is through like syllogisms that thinking identifies a new thinking. To identify is to re-cognize, and recognition is a cognitive process whereby mirroring of reality switches over from induction to deduction in no time. Here are the stages of this process:

X.Y.Z. are mortals,
X.Y.Z. are people,
All people are mortals,
Socrates is a man,
Socrates is a mortal.

The sensory contact with an individual object triggers off an inductive-deductive process in the subject's consciousness ending up in identification of the object.

Naturally, such a cognitive process proceeds only if the genus that the new thing belongs to is known in advance, hence, if the induction underlying the identifying deduction is instantaneous, as it travels a path well known already. In the consciousness of he who, before a certain object, finds out it is *pencil*, the following process proceeds instantaneously:

X.Y.Z. are called pencils,

X.Y.Z. are objects having characteristics a.b.c.d.,

All objects having characteristics a.b.c.d. are pencils,

This is an object having characteristics a.b.c.d.,

This is a pencil.

That these are the major stages of an identifying process is also obvious on analyzing "the other way round" any identification. This is a pencil, as it has characteristics a.b.c.d. and, as it is known, all objects having the characteristics a.b.c.d. are called pencils, since X.Y.Z. that have characteristics a.b.c.d. are pencils.

Only those logicians who fail to understand the dialectical leap from induction to deduction, from a probable judgment — because only total — to a necessary judgment — because universal — can hold that the syllogism is a vicious circle or "reasoning by analogy".

"Any inference", John Stuart Mill believes, "is from particular to particular. General propositions are mere records of already made inferences and short formulas which are meant to build others. The major premise of a syllogism is a formula of this kind and the conclusion is an inference derived not from the formula, but made *according to* the formula, the real logical antecedent, the real premise consisting of the (real) particular facts that the general proposition was built of by induction"[140]. To Mill "...the function of reasoning is to find that we or others before us thought to be inferrable from facts observed..."[141].

Obviously the conclusion of a syllogism whose major premise can only be a "memorandum" may be disproved at any time by a future experience.

Only he who understands the dialectical unity between the individual and the general and admits of the possibility of reflecting the general by the predicate of a universal judgment can rise above this stand. The major premise of a syllogism which indicates the unity between the individual

[140] John Stuart Mill. *op. cit.*, p. 217.

[141] *Ibid.*, p. 219.

and the general is no *sum-total* of singular judgments; it is a universal judgment, that does not confine itself to recording the past, but which is capable of predicting the future; hence, it does not only refer to reality, but to possibility as well, and hence, it surpasses the cognitive content of the singular judgments it derived from through induction.

Therefore, the conclusion of a genuine syllogism always includes new knowledge, since it either mirrors a *new* thing, which did not exist when the major premise developed, or it mirrors an old thing which was *unknown* at the time the major premise was developed. The conclusion of such a syllogism is implied in the major premise to the same extent the real is implied in the possible which it sets up. Can anyone say that reality brings nothing new as against possibility? The syllogism is still a *petitio principii* or a futile tautology only for those logicians who failed to rise above the metaphysics of the finite and of atemporality. To dialectical logic — *the logic of the infinite and of becoming* — the conclusion of an authentic syllogism always enhances knowledge of reality or of its reflection in people's consciousness. If through induction knowledge passes from reflection of the real to mirroring of the possible, through syllogism, thinking passes from mirroring the possible to reflecting the real. The syllogism shows both individualization of the general and realization of the possible. In a syllogism, the conclusion is included in the major premise to the extent to which the present includes the future. It is true that the syllogism is but an explicit notion; still through such explicit rendering, thinking is not held back, it advances on the infinite road of knowing infinite reality.

There are even neopositivist logicians who consider that the syllogism is a tautology, though they admit that the syllogistic conclusion is not lacking in novelty. Starting from the idea that "syllogism can bring nothing essentially new"...[142], A. J. Ayer writes: "The capability of logic and mathematics to surprise us — just as their usefulness — depends on the limits to our reason. A being whose intellect is infinitely strong would take no interest in logic and mathematics, as he would be able to see at a first glance everything that its definitions implies and, hence, through logical inference he could learn nothing that he was not fully aware before. But our intellect is different. We can detect at first sight only a small part of the consequences of our definitions [143]. But the infinite implications of our definitions mirror the essential characteristic of the infinite phenomena of the same kind that were, are and will still be. No wonder that the finite intellect of each of us cannot cover the infinitude of the permanently changing, renewing world. Human reason can only *gradually* know the world, but gradually it *can* know it. Syllogism not only explicates the definitions of the linguistic signs

[142] A. J. Ayer, *op. cit.*, p. 117.
[143] *Ibid.*, p. 118.

that would help people organize their sensory experience, they *explicate* the world itself.

Ayer thinks that "...even though they can serve as a guide to the empirical research of our knowledge, tautologies contain in themselves actually no information on the matter"[144]. As a matter of fact, the so-called "tautologies" could not guide our actions unless they mirrored the essence of the things we act upon. Experience cannot disprove the conclusions of syllogisms as the major premises of these syllogisms illustrate the laws of movement and development of things on which we act, and not as the major premises of these syllogisms are aprioric.

Neopositivists reduce novelty of conclusion as against its major premise to the novelty of an opened letter as against the same unopened letter. In their opinion, through syllogisms, knowledge gets no richer than a letter does when it is opened, and as opening of a letter is not useless at all, so the syllogism has a role of its own. From the logical point of view, the conclusion of a syllogism is always a new judgment, (as it is explicit) even if, from the psychological point of view, it is eventually known beforehand. But, by their conclusions, syllogisms are not confined to explicating conventional definitions: they reveal the essence and laws of things.

Only those who accept the metaphysical gnoseology of neopositivistd can say that induction and deduction are heterogeneous and proceed separately, that they do not impinge on each other. "The deductive methog is rightly considered as the most perfect among the methods for developin sciences..."[145], Alfred Tarski writes. With neopositivists, the major premise of a syllogism is a tautological proposition — axiom, postulate, definition or a proposition derived thereof — a priori and conventionally taken as true and which, therefore, cannot be invalidated by experience. In the neopositivists' outlook on logic, deduction is the best — because it is the most rigorous method of organizing sensory experience in a particular field. According to positivistic logicians, induction can only provide a working hypothesis disaprovable any time by a future experience.

Therefore, in their opinion, the conclusion of an induction is always a synthetic proposition and the major premise of a syllogism is always an analytic proposition; the conclusion of an induction is always an empirical proposition, and the major premise of a syllogism is always an a priori proposition. Neopositivistic gnoseology forbids thinking to pass from induction to deduction. From its standpoint, induction and deduction move on different levels. In the neopositivists' logic, induction and deduction are in a mechanical unity similar to that of the two pages of the same

[144] *Ibid.*, p. 119.

[145] Alfred Tarski, "Sur la méthode déductive", in *Travaux du IX^ème Congrès int. de philos.*, Paris, 1937, t. VI, p. 97.

sheet; they are not in a dialectical unity, within which thinking may pass from one to the other.

"Induction", F. Gonseth writes, "the logical procedure that should ensure transition from particular cases to the general case would bridge the gaps between observational facts and theories..."[146].

But Gonseth thinks that this opinion "can however be tested by facts and these do not prove it"[147].

Positivism has sentenced induction never to meet deduction. Because of the *opposition* between induction and deduction, positivists no longer see their *unity*.

"Deduction", Jacques Picard asserts, "is opposed to induction, just as an a priori testing scheme is opposed to an a posteriori testing scheme. Induction proves a hypothesis of a higher or lower probability by the truth of its consequences; deduction proves a proposition showing that it is implied by the principles established or postulated as true"[148].

Picard realizes that the classical distinction between "the three kinds of reasoning", which states that induction is a reasoning from the particular to the general, deduction a reasoning proceeding from the general to the particular and analogy is a reasoning from the particular to the particular, is superficial. "It could therefore be proved that this course of reasoning from particular to the general, from general to particular and from particular to particular is to be found both in induction and in deduction. We have in this remark the proof that the classical distinction between the three kinds of reasoning should not be founded on the idea of method, on the consideration of a starting point and a point of arrival: it should be set in relation to the certainty of reasoning, to its logical value, its principle."[149] But Picard does not realize that the uncertainty of the conclusion of an inductive "reasoning" is due to the fact that induction is not reasoning, that its "starting point" is mirroring of individual things and its "arrival" is a working hypothesis.

"As a matter of fact", Louis Rougier writes, "there are two, even three, kinds of reasoning: *reasoning is either deductive or it is not*, so that *the phrase* 'deductive reasoning' is a pleonasm."[150] Rougier grasped the qualitative difference between induction and deduction, but he utterly failed to grasp their dialectical unity. Whereas Picard did not even succeed in distinguishing between reasoning involved in developing induction and induction proper, Rougier severs reasoning from induction altogether.

[146] F. Gonseth, "La méthodologie des sciences", in *Dialectica*, nos. 41/42, p. 15.

[147] *Ibid.*, p. 15.

[148] Jacques Picard, "De l'invention à la preuve, analogie, induction et déduction", in *Travaux du XI^ème Congrès int. de philos.*, t. V. p. 19.

[149] *Ibid.*, p. 18.

[150] Louis Rougier, *La structure des théories déductives*, Alcan, Paris, 1921, p. VIII.

No doubt that induction cannot come to a total true judgment until disproved, through a hypothetical categorial syllogism whose major premise is the very postulate of induction, but this does not mean that induction proper is reasoning, and that the principle of induction is a tautology either.

Those who think that the principle of induction is also reducible to sheer tautology mistake the syllogism involved in developing induction for induction proper. Actually, the proposition "if all *a* are *b*, then all *a* will be *b*" tends to turn into a criterion for organizing future sensory experience, hence, to become a tautology that wouldn't be invalidated by experience, since whenever experience comes across an *a* that is not *b*, it will not take it for *a*.

However, on the one hand, induction is not to be mistaken for the syllogism completing it, and, on the other, induction may come not only to total judgments, showing occasional relations, but also to universal judgments, showing necessary relations, relations allowing for only one "... organization of the sensory experience". Induction is no reasoning proceeding from particular judgments to universal judgments, but a cognitive process proceeding from reflection of phenomena to reflection of their essence and laws of development. Deduction is no part of induction, it only governs its development. Inductive conclusions which are never invalidated by practice are no mere tautologies which help people organize more conveniently their sensory experience, they are as many universal judgments. A universal judgment is experimentally undisprovable, as it reflects the development laws of all the things of the same kind, and not as it is tautological.

Philipp Frank, for instance, realized that only *some* inductive conclusions tend to become tautologies, viz., the general ones. He speaks of the "gradual tendency of every general statement to fall into tautology"[151]. Frank discerns the possibility of knowledge to pass from a total judgment to a universal judgment, but interprets this possibility in the spirit of the metaphysical gnoseology of neopositivism. In his opinion, a general statement becomes mere tautology the moment it compels the facts to observe it[152]. As a matter of fact, general statements are always confirmed by practice, not because they make the facts observe them, but because they are observant of the facts. A proof that not any total judgment could cause facts to observe it! Why didn't the total judgment: "All people are white" turn into a tautology ruling the Negroes out from among the people? The universal judgment is certain not because tautological, but because knowledge reaches it after it has experimentally discovered the essentiality, necessity and generality of the real relationship it denotes.

[151] Philipp Frank, *Le principe de causalité et ses limites*, Flammarion, Paris, 1937, p. 34.
[152] *Ibid.*, p. 35.

The same transition of knowledge from total to universal judgment is referred to by the positivistic logician as a "downfall" of the judgment on facts in a tautology that indicates only the way these facts organize, and by the materialist-dialectical logician as a *rising* of knowledge from reflection of an occasional relation to reflection of a necessary one.

To a positivist, a proposition may become universal if it gives up reference to facts. Propositions referring to facts can be but uncertain. Tautologies alone are certain. "There is no certainty besides tautologies"[153], Hans Reichenbach states. According to him "...philosophy is either certain and tautological or it is uncertain and empirical. The first tautologic part of philosophy is logic; the second is commonly referred to as the theory of knowledge"[154]. Reichenbach makes logic and mathematics turn their back on the theory of knowledge. Logic and mathematics tell us nothing of the laws of nature, they only tell us something of the rules whereby the various formulas of these laws interrelate. The theory of knowledge deals with the empirical statements predicting future experiences. "Therefore, the theory of knowledge is a theory of predictions."[155] So, deduction is the object of logic and induction is the object of gnoseology. "Here is the decisive turn distinguishing between present-day scientific philosophy and all the others preceding it. The ideal of absolute knowledge is acknowledged as unattainable, as a chimera; certainty is the privilege of tautologies alone, hence of propositions that convey no knowledge to us. We are left nothing but the alternative between certainty and knowledge: either to say nothing and be sure — or to say something and let doubts creep in"[156], Reichenbach concludes. Reichenbach is right to hold that induction relates ideas to facts whereas deduction relates ideas to ideas, but he is wrong to think that empirical propositions can never be certain, and that tautological propositions can never have an objective content. Induction can also lead under particular circumstances to certain judgments.

Reichenbach's resigned scepticism, just as all scepticism, is the natural victim of dogmatism. True, he defends himself against scepticism by stating that scientific philosophy "knows that scepticism is but the adverse feeling accompanying exaggerated exigencies; it is ready to give up the ideal of absolute certainty without giving up learning what is to be learnt"[157].

But then, is it not more scientific *that* philosophy which proves that absolute truth is not *existence* but *becoming*, not a system of final knowledge

[153] Hans Reichenbach, "La philosophie scientifique: une esquisse de ses traits principaux", in *Travaux du IX^ème Congrès int. de philos.*, Paris, 1937, t. IV, p. 88.

[154] *Ibid.*, pp. 88—89.

[155] Hans Reichenbach, *op. cit.*, p. 89.

[156] *Ibid.*, p. 90.

[157] *Ibid.*

but the endless array of relative truths, that relativity of truths does not nullify their objectivity or certainty either? Dialectical materialism refutes both dogmatism and scepticism, and shows that truths are eternally transcendable, they are no less objective and certain. The opposition between induction and deduction has lately been the concern of many logicians.

After some remarks on the superficial character of the classical distinction between induction and deduction, according to which the former is reasoning whereby thinking proceeds from the particular onto the general, and the latter is reasoning whereby thinking proceeds from the general to the particular, Lucien Bonnot writes:

"We shall therefore call *deduction* any reasoning whose rational form is *logical* and vice-versa; so that the phrase: *illogical deduction* will be contradictory in itself, and *logical deduction* — a pleonasm.

On the contrary, we shall call *induction* any reasoning whose rational form is *illogical* and vice-versa; so that a logical induction will be mere absurdity and illogical induction — a pleonasm"[158]. Bonnot assumes that logical means *necessary* and illogical *occasional*, and holds that deduction is logical and induction illogical. But as he could not realize that the phrase *illogical reasoning* is as contradictory in itself as the phrase *logical induction*, Bonnot failed to understand that induction is illogical because it is not reasoning, and deduction is logical because it is reasoning and concludes that induction and deduction are "...the two contradictorily opposed species of genus *reasoning*, which has none others. Their respective conclusions are opposite in the same way: deduction provides a *necessary conclusion* — induction provides a *contingent* one"[159]. Bonnot, too, fails to distinguish between induction and reasoning which helps it develop. Only reasoning can be logical, since it alone proceeds at the level of concepts. Induction is the path travelled by knowledge from individual things to general ideas. Even the identifying syllogism, which generally leaves the impression that through it thinking goes back to individual things, is an exclusively conceptual movement. The conclusion of the syllogism:

All people are rational,

This is a man,

This is rational,

is a *judgment* about an individual being, not the individual being itself. It is precisely between the perception of a particular individual thing and

[158] Lucien Bonnot, *Essai sur les fondements de la logique et sur la méthodologie causale*, P.U.F., 1943, p. 21.

[159] *Ibid.*

a particular singular judgment about the same individual thing that the dialectical leap from the sensory to the logical occurs. Judgment, no matter how singular, does not come in touch with the individual thing referred to. It can only mirror it in a *mediated* way. The subject of such a judgment already denotes the individual thing referred to by the whole judgment as an *ob*-ject.

Failing to understand the phrase "inductive reasoning" as an opposition between terms, Bonnot considers that all reasonings conducive to occasional conclusion are inductive. "Generally", he writes, "*to derive in a mediated way* is impossible: neither truth from falseness, nor falseness from truth — whereas to conclude *inductively* either of them is possible"[160]. Bonnot calls induction any non-rigorous reasoning, all while suspecting that the uncertainty of induction is governed by its immediate character as long as it stresses the *mediate* character of deduction. "...to be a rigorous operation, induction should be deduction" [161], Bonnot concludes.

Actually, as soon as an induction turns rigorous, it changes to deduction and can instantly be syllogized. It is no accident that only such induction was analyzed by Aristotle, the father of syllogism. Here is its scheme:

X.Y.Z. are B,

X.Y.Z. are all A,

All A are B.

Not only that, when read the other way round, such an induction is a simple categorical syllogism of the first figure, Barbara mode, whose subject is a set; but even if left unreversed it is a simple categorical syllogism of the first figure, Barbara mode, whose mean term, however, is not a kind, but a set:

X.Y.Z. are B,

All A are X.Y.Z.,

All A are B.

The syllogistic structure of such full induction is better realized through conversion of the minor premise.

Whereas full induction is tantamount to a syllogism, owing to its rigorousness, spontaneous generalizing induction can be turned but into a

[160] Lucien Bonnot, *op. cit.*, p. 22.

[161] *Ibid.*, p. 182.

pseudosyllogism that cannot stand John Stuart Mill's criticism of the syllogism, as its conclusion cannot be less contingent than its major premise.

Indeed, from induction:

X.Y.Z. are B,
X.Y.Z. are A,

All A are B,

only deduction:

All A are B,
This is A,

This is B

can derive.

But the conclusion of this syllogism can be but probable, since its major premise is no universal judgment, but only total, actually an *open particular* where experience adds continuously — though no one knows for how long — similar individual cases of the same kind.

John Stuart Mill is right to note that such a syllogism is only a pseudo-syllogism, a syllogistically covered induction [162]. His fault lies in not even suspecting the existence of a genuine syllogism, deriving from an induction other than spontaneous. Such a syllogism only derives from a scientific dialectical induction.

If Baconian induction is a "hypothetical generalization of a singular, empirical or intuitive statement", as L. Rougier puts it, scientific induction is the process whereby knowledge discovers, by a dialectical leap, the essentiality, necessity and generality of the real relation mirrored by the working hypothesis in whose light it has been developed [163].

The working hypothesis is precisely the conclusion of a spontaneous induction, and the scientific theory is the conclusion of a dialectical induction. By spontaneous induction, knowledge rises from observation and experience to hypothesis, and by scientific induction, thinking rises from hypothesis to theory. By dialectical induction, knowledge succeeds in joining the fertility of induction to the rigorousness of deduction. Through

[162] Refering to such a syllogism, Mill writes: "Inclusion of a general proposition does not add anything to the problem..." (*op. cit.*, p. 209). "Not only can we conclude from general to particular without passing through the general", Mill goes on, "but we almost never do otherwise" (*op. cit.*, p. 210). Mill failed to distinguish between kind and set, the total from the universal and induction from the syllogisms governing it, and he reduces the whole thinking to induction, moreover, to induction by analogy.

[163] The real relation can be a self-relation or a heterorelation, or a law, or the unity between phenomena and essence, or the correlation of cause to effect.

scientific induction, by a logical leap, thinking passes from mirroring the characteristics shared in common by an *indefinite* amount of similar individual things to mirroring the *general* characteristics of an *infinite* amount of individual things of the same kind. The subject of a total refers to an *indefinite set* of individual cases, whereas the subject of a universal refers to an *infinite kind* of individual cases. The predicate of a total refers to a *common* characteristic, whereas the predicate of a universal refers to an *essential* characteristic. The copula of a total shows a *relatively constant* real relation, the copula of a universal mirrors an *absolutely necessary* relation. The main moments of the transformation of a spontaneous induction into a scientific induction are:

Observation:	X.Y.Z. are B.
	X.Y.Z. are A.
Hypothesis:	All A are B.
Experiment:	X.Y.Z. are necessarily B.
	X.Y.Z. are A.
Theory:	Any A is B.
Syllogism:	Any A is B.
	X.Y.Z. are A.
	X.Y.Z. are B.

A genuine syllogism is no tautology or vicious circle since its conclusion, while rigorous, still adds new knowledge. The conclusion of such a syllogism stays rigorous as it asserts no more in the major premise than the same syllogism does; but it constitutes fresh knowledge since it identifies a thing that consciousness is aware of for the first time. The conclusion of such a syllogism can at the same time be both rigorous and fresh because it is not derived through Baconian scientific induction, but from dialectical scientific induction, the existence of which was unknown to both Bacon and Mill.

There are logicians today who are aware only of the opposition between induction and deduction, but who ignore their unity and the role played by dialectical induction in overcoming this contradiction; they believe that thinking can overcome this opposition through mathematical reasoning. "Mathematical reasoning", Jean Piaget writes, "displays therefore this original characteristic of being at the same time gradual generalization and strictly rigorous deduction; it, therefore, resembles deduction in its generalizing character but it does not share, however, its lack of rigor,

and is akin to syllogism by its internal necessity character, without sharing its lack of fertility"[164]. But mathematical reasoning is a synthetic, generalizing deduction, and, just like any genuine deduction, it ultimately derives from dialectical induction. Mathematics, for all its deductive rigorousness, is no "vast tautology", precisely because its axioms reflect real necessary correlations. The convenience of axioms springs from their truth, not the other way round.

What positivists today would not admit is that by dialectical induction thinking may reveal the necessary character of a real relationship. As a matter of fact, by the various methods of experimental research, thinking may discover that a characteristic A necessarily co-exists alongside of a characteristic B, or that a phenomenon A necessarily determines the succession of a phenomenon B. Scientific experiment can do much more than spontaneous observation and experience.

"In a philosophical acceptation", Claude Bernard remarks, "observation *shows* and experiment *teaches*."[165] Referring to the process of transition from hypothesis to theory, Claude Bernard writes: "Experimental hypothesis is but the scientific, preconceived and anticipated idea. Theory is but a scientific idea controlled by experiment"[166]. Claude Bernard fully approves of Cuvier's famous words: "The observer listens to nature; the experimenter asks it and makes it reveal itself"[167].

Unlike Jean Piaget, for instance, Claude Bernard is aware of the unity between induction and deduction, but he is not aware of their opposition. "I do not believe that induction and deduction are actually two essentially distinctive forms of reasoning"[168], Claude Bernard writes. Claude Bernard fails to distinguish between induction and the syllogisms governing its development, and he confines himself to distinguishing between the mathematician's syllogism and the naturalist's one. "When the mathematician and the naturalist start from a principle, they use *deduction*. They both resort to syllogism in reasoning. To the natural scientist it is a syllogism whose conclusion is still doubtful and requires checking, because his principle is unconscious"[169]. Claude Bernard does not realize that the two syllogisms referred to are radically different, since, whereas the syllogism of the natural scientist is a reversed spontaneous induction, that of the mathematician is, in the last analysis, reversed scientific induction.

[164] J. Piaget, *Traité de logique*, p. 380.

[165] Claude Bernard, *Introduction à l'étude de la médecine experimentalle*, Flammarion, 1952, p. 40.

[166] *Ibid.*, p. 63: "... actually the experiment is but observation caused by some aims".

[167] *Ibid.*, p. 40.

[168] *Ibid.*, p. 87.

[169] Claude Bernard, *op. cit.*, p. 86.

"There is no theorem true in itself, outside a system of axioms and a logic it refers to", Louis Rougier remarks [170]. As a matter of fact, the truth of a theorem lies first and foremost in its ability to faithfully reflect a real and necessary correlation; hence, its non-contradictory character as against the system of axioms it derives from — an axiomatic system which is not that of any logic; it is an axiomatic system of the logic which reflects the laws of the rational reflection of this unique world only.

A. Heyting relates how "Poincaré holds that in mathematics, the existence of an object is ensured by the consistency of the system of axioms that are its implied definition" [171]. In fact, axioms and definitions do not make up the object, they only reflect it in its essentiality.

The French logician Maurice Dorolle also realized the difference between induction and deduction: "... induction passes from a fact, or, rather from the datum, to idea, whereas deduction passes from idea to idea" [172], Dorolle writes. But he, too, failed to realize the unity between induction and deduction, and the dialectical leap whereby thinking passed from induction to deduction.

Edmond Goblot approaches, at a certain moment, the inductive source of deduction. "A science", he writes, "cannot become perfectly deductive unless it has found its actual beginning." [173] Indeed, a deduction cannot be taken as perfect unless it has been found to derive from a dialectical induction. But before the dialectical leap whereby scientific induction turns into perfect deduction, Goblot stops. "... Any law developed only by experience and induction is unintelligible; to come to know its intelligible reason is to provide its proof a priori" [174], he writes. To Goblot, deduction alone is able to prove and describe. "A natural law founded on experience and proved by induction shows a *constant order*." [175] Unlike deduction, induction cannot transcend the real. "By becoming inductive", Goblot writes, "physics, just like mathematics, will be a science of the possible and of the real to the same extent". [176]

Before Marxist logicians, the contradictory unity between induction and deduction could not be explained.

"Induction is the operation whereby we pass from knowledge of facts to knowledge the laws governing them" [177], the French philosopher Jules

[170] Louis Rougier, *Traité de la connaissance*, Paris, 1955, p. 20.

[171] A. Heyting, "Sur la tâche de la philosophie des mathématiques", in *Actes du XI^ème Congrès int. de philos.*, Vol. V, pp. 195—196.

[172] Maurice Dorolle, *Les problèmes de l'induction*, Paris, Alcan, 1926, p. 74.

[173] Edmond Goblot, *Le système des sciences*, Arm. Colin, Paris, 1922, p. 37.

[174] *Ibid.*, p. 35.

[175] *Ibid.*, p. 32.

[176] *Ibid.*, p. 38.

[177] J. Lachelier, *Du fondement de l'induction*, Alcan, Paris, 1907, p. 3.

Lachelier wrote half a century ago. But he could not find the foundation of induction, as, to him "... matter and causes are but a necessary hypothesis, or rather, an indispensable symbol that helps us project in time and space what is in itself superior to either of them" [178].

Contemporary non-Marxist logicians abandoned Kant's transcendental apriorism and lately adopted the conventional apriorism of logical positivism; but this could not bring them much closer to understanding the essence of reasoning.

Therefore, what is commonly called "inductive reasoning" is but the reasoning by means of which an induction develops, sets up and expresses itself.

"... There are inductive processes, but there are no inductive reasonings" [179] Paul Foulquié concludes, though from a different stand. The French logician thinks that the dialectical leap which severs and brings together mirroring of the individual and reflection of the general, is *intuition*. "... Induction", he writes, "does not consist in extending to all the individuals of the same species a characteristic seen in some of them, but in seeing the very kind of the species in a particular case. It does not consist in concluding the general from the particular but in seeing the general in the particular. It is an intuition." [180]

The classics of Marxism-Leninism left us highly valuable remarks and appreciations in this respect. Referring to induction, Engels uses the phrase "... the so-called inductive reasoning..." [181]. But when he considers the rational expression of induction, he specifies: "As if deduction were not reasoning, hence induction — a deduction" [182]. Against paninductivists who fail to understand that induction cannot exist without deduction, and that deduction is the opposite of induction, Engels writes: "Irrespective of all induction, we could not have ever succeeded in explaining the *process* of induction" [183]. To explain is to mirror the general, hence to think, to reason, to infer. Therefore, the so-called "inductive reasoning" is not induction proper, it is only the reasoning which expresses it.

"Senses point to reality; thinking and word point to the general", Lenin stresses [184]. Induction is the cognitive process that prepares and accomplishes the dialectical leap from knowledge of the individual to knowledge of the general.

[178] *Ibid.*, p. 85.
[179] Paul Foulquié, *Logique*, Les Editions de l'Ecole, Paris, 1953, p. 27.
[180] *Ibid.*, p. 193.
[181] Fr. Engels, *Dialectica naturii* (Dialectics of Nature), E.S.P.L.P., 1954, pp. 229—230.
[182] *Ibid.*, p. 229.
[183] *Ibid.*, p. 231.
[184] V. I. Lenin, *Caiete filozofice* (Philosophical Notebooks), E.S.P.L.P., 1956, p. 248.

Only deduction can be dialectical reasoning. Hegel somehow suggests the logical structure that such a reasoning should have. "Taking as middle term", Hegel says, "the gravity of plants, of satellites and comets, we would be right in concluding that all bodies must fall on the Sun, but they do not fall because they are, themselves, their own center of gravity; or, as it is commonly said, because they are moved by a centrifugal force." [185]

The logical structure of this reasoning would be as follows:

Because of the centripetal force,
planets fall on the Sun,
Because of the centrifugal force,
planets do not fall on the Sun.
Hence, planets do and do not fall on the Sun.

From the standpoint of dialectical materialism, the Hegelian text suggests that such reasoning should consist of two premises, one of which would reflect one side of the contradiction, and the other would reflect the other side of the same contradiction, and a conclusion which can be nothing else than a dialectical judgment.

Hegel also calls attention to the dialectical character of the middle term that such a reasoning starts from. Like Aristotle, Hegel, too, takes the middle term for the source of the self-development of reasoning. In his example, the middle term is distributed in both premises and shows the dialectical unity between the centripetal and the centrifugal forces. The two premises stem in turn from the two opposite sides of the same middle term. According to Hegel, the middle term of a dialectical reasoning should always be concrete. "The concrete", Hegel writes, "is therefore no mere appearance, it is a concrete owing to the unity of the opposites that the concept implies and that make up its moments." [186]

In like dialectical reasoning, the premises illustrate *successively the set-up opposites* and the conclusion illustrates *simultaneously the setting-up of opposites*. As against the premises mirroring *the existence* of the opposites, the conclusion reflects their *becoming*. The cognitive surplus that the conclusion of such reasoning brings is obvious.

For instance, the dialectical judgment: "Every thing is both identical and different" is the conclusion of the following dialectical reasoning:

[185] G. W. F. Hegel, *Science de la logique*, transl. by S. Jankélévitch, vol. II, Aubier, Paris, 1949, pp. 357—358.

[186] G. W. F. Hegel, *op. cit.*, p. 357.

By its general characteristics, every thing is identical with all the other things of the same kind,

By its individual characteristics every thing is different from all *the other things*,

Hence, every thing is both identical and different.

The difference between the logical structure of a syllogism and the logical structure of the dialectical reasoning is accounted for by their different content. Whereas a syllogism mirrors the relatively stable unity of opposites, a dialectical reasoning reflects their absolute inner contradiction. That is why the mean term of a usual syllogism is, in a Hegelian acceptation, always abstract, never concrete, viz., it is repeated as a whole in both premises, without revealing its opposite sides, by their being distributed in the two premises.

In a dialectical reasoning, thinking proceeds from revealing the two set-up opposites to the understanding of the *process* of setting-up the *opposites*.

The conclusion of a dialectical reasoning is a dialectical judgment whose logical correlation does not reflect what *is* but what *becomes*.

Through dialectical reasoning thinking penetrates into the *processual* identity of the opposites. The identity of opposites is possible only in their setting-up before they have shared various relationships with the other things.

Dialectical thinking, which mirrors the processual identity of the opposites, guides the practice of consciously changing things, viz., that practice by whose virtue things pass over into others in a controlled way.

Not only dialectical judgments with two opposite predicates can be obtained by like dialectical reasonings, but the other types of dialectical judgments are similarly derived by dialectical reasonings.

The dialectical judgment: "It is not the eminences that make history, but history that makes them" can be obtained in the following way:

The old theory holds that eminences make history,

The new practice proves that history makes the eminences,

Hence, it is not the eminences that make history but history that makes them.

The dialectical judgment: "Neither metaphysical materialism nor dialectical idealism can be scientific philosophy, only dialectical materialism can be" was reached as follows:

Metaphysical materialism fails to grasp the *development* of matter,

Dialectical idealism fails to grasp the matter of development.

Hence, neither metaphysical materialism, nor dialectical idealism, but dialectical materialism.

A syllogism whose major premise is a dialectical judgment should fully observe the general and special laws of the syllogism, since the contradiction it mirrors proceeds in a relatively stable unity, the nodal leap it

reflects divides two relatively stable qualities, and the interdependence it points to joins relatively independent things.

The relative stability of the identity of things and their relative independence governs the structural validity of syllogism and of its rules.

★

From the rostrum of the international congress of philosophy, the Belgian philosopher Ch. Perelman finds that "modern" logicians share a conception of logic where "the historical and human factor is utterly forgotten or considered as negligible and of no consequence to the problems of logicians" [187]. He further on writes: "A theory of logic and a theory of knowledge would be incomplete and insufficient if they did not succeed in accounting for this superiority of the spirit over the computer..." [188].

Only the so-called modern logic cannot account for this "superiority of the spirit over the computer", irrespective of the improvements it incorporated; only materialist dialectical logic can fully account for it.

[187] Ch. Perelman, "Logique, language et communication", in *Atti del XII Congresso Internationale di Filosofia* (Venice, 12—18 Septembre, 1958), Relazioni introduttive, Florence, p. 130.

[188] *Ibid.*, p. 129.

VII. IMPOSSIBILITY OF TRANSCENDING DIALECTICAL LOGIC

After having buried it for scores of years in complete silence or having seldom only referred to it alongside the other "leftist Hegelians", non-Marxist philosophers have been trying these past few-years to persuade the world that Marxism "has become outdated" and that it should be urgently "transcended", that dialectical logic is a naïveté which mathematical logic dispells every passing day. "If we consider him only as a philosopher, Marx has serious shortcomings" [1], Bertrand Russell writes. And the English philosopher explains: "He is too practical-minded, too much concentrated on the issues of his time. His thinking is confined to this planet, and on this planet, to man. From Copernicus it has been obvious, that man has no longer the cosmic significance he had assumed before. There is no man who, having failed to understand it, may call his philosophy scientific" [2].

Therefore, what the English philosopher takes for outdated in Marx' world outlook is precisely what the overwhelming superiority of Marxism over any other philosophy lies in: its consistent and rigorously scientific humanism. By superseding geocentrism, the Copernican revolution did not supercede the idea that by social practice, on the human level, moving matter acquires selfconsciousness... *Man's importance* in cosmos is not governed by the *place* he holds in this cosmos, but by his constantly greater *power* over it.

Finding out that "... Marxism, however, is no less alive in the heart and spirit of millions of people and that it keeps inspiring the most important social movement of our epoch" [3], the French philosopher Jean Lacroix thus concludes one of the chapters of his work: "It is less the case to reject Marxism, than to require it to acknowledge the essential fact providing materialization of its deep intention" [4]. But what is Marxism to acknowledge? "The fault with Marxism, the same as with atheistic existentialism", Jean Lacroix points out, "is that it does not acknowledge everything that humanity implies" [5]. Here is how the author conceives of

[1] Bertrand Russell, *Histoire de la philosophie occidentale*, N.R.F., Paris, 1953, p. 800.
[2] *Ibid.*
[3] Jean Lacroix, *Marxisme, existentialisme, personnalisme*, P.U.F., 1955, p. 5.
[4] *Ibid.*, p. 48.
[5] *Ibid.*, pp. 106-107.

a philosophy that takes into account "everything that humanity implies": "A human philosophy shall neither be a philosophy of unhappy consciousness, nor a philosophy of happy consciousness, but a philosophy of anxious consciousness. This is where Marxists were right in analyzing the proletarian condition. Their only fault lies in their not having delved deeper down to this essential anxiety of man, crucified between time and eternity" [6].

But what is temporal can approach eternity only through faith. "To believe", J. Lacroix writes, "... is to open time to eternity" [7]. The act of knowledge thus turns into an act of faith. "Thus, to say that true faith is no evasion or performance, but *commitment* — is to say that it is faith" [8]. In his opinion, the Marxist theory of knowledge should be transcended by a theory of faith, much as the socialist revolution shall be transcended by the apocalyptic catastrophe. "Unlike the apocalyptic catastrophe, the revolution does never establish a perfect and final state," [9] Jacques Madaule "warns" us.

Faith, in its lay acceptation, is but the affective load of true ideas, their extra-logical aura. Faith can only accompany adequate knowledge of the object. Faith is always subordinate to knowledge. But Lacroix reverts the correlation of knowledge to faith. "To imagine faith as lower knowledge is therefore the biggest mistake; science is but a necessary and insufficient element of any faith" [10], he remarks. From *credulity* — the object's domination over the subject through *doubt* — departure of the subject from the object — to faith — the subject's domination over the object — here is, according to Lacroix, the "dialectical" path of knowledge, whereby *temporality* — viz., imperfection — approaches *eternity* — viz., perfection.

Similarly, the French Neo-Thomist Jacques Maritain shows his contempt for Hegel as a dialectician; thus he did not straightforwardly launch an attack on Marxism, but through one of its sources. "His error was to think that the climax he had reached was the huge Himalaya of human thinking: in fact, it was but a small mould of ground, the hill of reason taken as the measure of all things." [11] To Maritain, faith is also superior to logical thinking, and true philosophy transgresses the narrow bounds of dialectics. "Therefore," he writes, "the dialectician

[6] *Ibid.*, p. 70.

[7] *Ibid.*, p. 105.

[8] *Ibid.*, p. 110.

[9] Jacques Madaule, "Apocalypse et révolution", in *La table ronde*, February 1957, p. 108.

[10] J. Lacroix, *op. cit.*, p. 114.

[11] Jacques Maritain, *La dialectique de Hegel*, N.R.F., February 1957, no. 50, p. 234.

is no philosopher: he is a logician and through dialectics he approaches the real which he can grasp in a particular way (by way of reason), though however, be never comes to reach knowledge or philosophy either, he stays a logician looking at the real from the outside..." [12].

But then, this "transgression" of Marxist gnoseology, was it not long before and actually transcended by Marxist gnoseology? The opponents of Marxism "transcend" a "Marxism" of their own making, not the Marxism of Marx. Marx has discovered once and for all that through practice the subject can know the object without avoiding the subjective forms of reflection; it is through them, without resorting to faith, that they can experimentally prove their ideas. By materially acting on the real concrete — "the unity of diversity" [13] — man mirrors its individuality by sensations and its generality by abstractions; this accumulation tends to reflect logically the real concrete. "On the former path", Marx writes, "total representation has been dissipated into an abstract determination; on the latter, abstract determination, leads to reproduction of the concrete, by way of thinking" [14].

J. Lacroix who considers the dialectical unity between theory and practice as a "dilemma" that man should avoid, writes: "The question of knowledge, of primary knowledge — if you like it — poses an apparently insurmountable difficulty. There is no theory without practice, there is no practice without theory. Man needs a theory to observe facts; he needs facts to develop a theory. There is no way out of this dilemma, and he will never know anything so long as he does not make up his mind to cut the Gordian knot of knowledge and *devise* a theory that will allow him to perceive facts" [15].

Lacroix does not understand the dialectical nature of the unity between practice and theory. Equally distinctive and inseparable, practice and theory do not have the same weight. Within the unity between practice and theory, practice weighs heavier. The line joining theory to practice is not horizontal, though oblique, pointing to practice. Practice is primordial and determinant, theory is secondary and determinate. Practice and theory are the two opposites of human activity. They both developed together alongside of man's development. Before man appeared there was no practice or theory either. Without practical work, animal action cannot turn into human practice.

[12] *Ibid.*, January 1957, no. 49, p. 24.

[13] Karl Marx, *Contribuţii la critica economiei politice* (Contribution to Critique of Political Economy), E.S.P.L.P., 1954, p. 226.

[14] Karl Marx, *op. cit.*, p. 226.

[15] J. Lacroi, *op. cit.*, p. 53.

Lacroix sees a "vicious circle" in what actually is a unity of opposites. That is why, to break this "vicious circle" is to him *to believe* in the agreement between human ideas and objective reality. True ideas do not originate as a consequence of the contact between subject and object, which is considered impossible. Likewise, the truth of ideas cannot be checked by such a contact either. "Thus", Lacroix writes, "the truth of the idea, what causes faith, cannot be an extrinsic character of idea, viz., a relation between idea and object, but an intrinsic character. Or, it is this intrinsic character of idea accounting for its distinction: any idea that has the necessary clearness and force asserts itself and leads to consent of the spirit" [16]. No doubt that the truth of ideas does not lie in the relation of idea to object. Truth is an *acquisition* of the idea, not a *relation* between idea and object. But the truth of an idea is ultimately proved only by its confrontation, through practice, with the object it reflects [17]. Truth is a property, not a relation, but it can be born and rendered obvious only in a correlation. And since "... it, too, does not conceive of human activity as objective activity" [18], Lacroix comes to the conclusion that "... Marxism is less an objective system for explicating the universe, than an obstinate will to shape a new man" [19].

By falsifying in the same subjectivist sense the content of the Marxist notion of "praxis", M. Merleau-Ponty writes: "... truth in politics may be but this art to devise what will afterwards seem to be required by time" [20].

But how can something new and lasting be developed without an objective system for explicating the universe, how can something be "devised", that will subsequently prove to be required by time, without true ideas?

Those who think that "... pure matter without qualities or God without attributes are identical" [21] make a clear distinction between knowledge, whereby time approaches eternity, and intelligence, reason, science and conscience, whereby man orders his everyday life. "Praxis", Jean Lacroix writes, "is obviously no dooming of intelligence; whereas purely objective

[16] *Ibid.*, p. 98.

[17] "... The properties of a thing do not originate in its relationship with other things, they only become obvious in this relationship..." K. Marx, *Capitalul* (Capital), vol. I, P.M.R., p. 88.

[18] K. Marx and F. Engels, *Ideologia germană* (German Ideology), E.S.P.L.P., 1956, p. 613.

[19] J. Lacroix, *op. cit.*, p. 26.

[20] M. Merleau-Ponty, *Les aventures de la dialectique*, N.R.F., Gallimard, Paris, 1955, p. 42.

[21] Jean Hyppolite, *Etudes sur Marx et Hegel*, Paris, 1955, p. 69, note 3.

knowledge, that would have no sense or significance along historical becoming, is discredited, consciousness and reason have a major role" [22].

Practice cannot outrun history. It proceeds in time. Only pure knowledge can reach eternity. "In other words", Lacroix writes, "*the spirit of system* pertaining to eternity and *the historical sense* pertaining to temporality are hard to reconcile" [23]. Lacroix, who was convinced that theory looking towards eternity has nothing in common with practice subsumed to history, comes to particularly strange opinions on Marxism. "Objectivity of stand, which, as a matter of fact is that of pure knowledge, is therefore most opposed to Marxism..." [24].

On the contrary, Marxists know that opposition between eternity and temporality is no more than "canonizing" [25], as Marx puts it, the objective dialectical contradiction between matter and movement, general and individual, essence and phenomenon, etc. That is why Marxists see a dialectical unity between knowledge of what is constant or relatively constant in things — their essence and laws of development — and practice whereby people change the variable aspects of these things — their individual characteristics. People cannot change the essential characteristics unless they change their individual characteristics; and changing the individual characteristics of things with a view to changing their essence implies both *strictly objective* knowledge of the essence of the things *which* are to be changed and of the essence of things they are to be changed *into*, and knowledge of their laws of development.

Jean Lacroix ignores the truth when he accuses Marxists of melting theory into practice, of ecstatically looking at the individual, refusing "contemplation" of the general. "There is no knowledge", he writes, "without some *withdrawal* from the already known object. But this withdrawal is already betrayal. It is precisely this theoretical stand, viz., etymologically contemplative stand, that the communist refutes" [26].

But are Marxists not stressing that practice lacking theory is blind, that people cannot deeply change the real concrete unless it is seen in the light of high logical abstractions? Wasn't it Lenin who said that "movement of knowledge *to* the object can always proceed only dialectically: to step back in order to better hit at...?" [27].

A thing, which is a unity between the individual and the general, can neither be known nor changed otherwise than through the unity between

[22] J. Lacroix, *op. cit.*, p. 15.
[23] *Ibid.*, p. 60.
[24] J. Lacroix, *op. cit.*, p. 8.
[25] K. Marx and F. Engels, *op. cit.*, p. 304.
[26] J. Lacroix, *op. cit.*, p. 7.
[27] V. I. Lenin, *Caiete filozofice* (Philosophical Notebooks), E.S.P.L.P., 1956, p.253.

practice and theory. However, it is true that what Lacroix understands by "withdrawal from the object to be known" is but withdrawal from the surface of the object to be known and, hence, approach to the *core* of the object to be known.

That metaphysicians do not understand dialectics is proved once again by Jean-Paul Sartre, who doesn't accuse Marxists of overlooking the general for the sake of the individual, as Jean Lacroix claims, but of overlooking the individual for the sake of the general.

"The Marxist", Jean-Paul Sartre writes, "is therefore made to take as appearance the real substance of a behavior or thinking and, by dissolving the particular into the universal, to think that he reduces appearance to truth" [28].

The Marxist neglects neither the individual nor the general, neither practice, nor theory, and his satisfaction when thinking that he can reduce appearance to truth is justified whenever he *understands* what he lives, since true judgments are truer than true perceptions.

Marxists reject both the existentialist casting of consciousness into the ocean of individual things, and the religious stooping of consciousness to faith. Sensations, which mirror the individual rule of things, do not sever people from things; on the contrary, they link them to things. Through *the same* sensations people learn both when they have succeeded and when they have failed to discover a natural or societal law. The distance between the affirmative and the negative answer whereby the object, obeying or opposing human actions, proves or disproves the assumptions of the subject, is precisely that separating truth from error. Practice is not reducible to a sequence of sensations. Sensations are no more than the first subjective echo of consciousness having faced the object. Practice is the unmediated, real, material, objective contact of consciousness with existence. Practice governs formation of true ideas and checks them. Practice is therefore transition from objective to objective through the mediacy of the subjective. Sartre is also aware of this process: "Praxis, is therefore transition from objective to objective, through interiorization" [29]. However, what Sartre does not see is that the objective that is reached is superior to the objective one has started from, since the objective reached also involves human creation.

Jacques Lacroix indignantly remarks that with Marxists "... there is no truth outside the Party" [30].

[28] Jean-Paul Sartre, *Questions de mèthode*, in *Les Temps Modernes*, no. 139, September 1957, p. 372.

[29] *Ibid.*, p. 406.

[30] J. Lacroix, *op. cit.*, p. 24.

This is but natural. Truth is the main ally — Raymond would obviously say "an accomplice" — of Marxist parties. Marxism and truth are agreeing notions to any communist. Any truth, no matter who has discovered it, is immediately taken over by Marxism, any error, no matter who made it, is immediately ousted from Marxism. Through the Marxist party human society becomes self-conscious. Scientific objectivity and communist party-spirit are synonymous phrases. There cannot be a truth alien to the Marxist party. The policy of Marxist parties goes the same way history itself goes.

"The October generation", M. Merleau-Ponty writes pseudo-nostalgically, "just like the Young Marx, believed in an action that is proved, in a truth that will *become* in the life of the party and of the proletariat" [31]. All Marxists throughout the world still believe what Marx and the "October generation" did. Only that it is no more a "belief", but a highly scientific outlook on the world. That is why the enemies of Marxism are so embittered against dialectical materialism.

"Dialectical materialism, here is a higly paradoxical phrase, since dialectics is related to idealism viz., contrary to materialism" [32], Emile Bréhier states, unable to overcome the level of metaphysical materialism; "... dialectical materialism — Marx and Engels' formula – which seems to us, in itself rather obscure, even contradictory in a sense..." [33], Jean Hyppolite haughtily wonders.

Especially "contradictory"! Only that here no mere contradiction is involved that would sin against the law of non-contradiction in elementary logic, but a contradiction according to the law of the unity and conflict of opposites in dialectical logic. Dialectical materialism reflects the contradictory unity between matter and motion. Here is the principle that should urgently be compromised: the principle of contradiction. The opponents of Marxism realized the fact that the essence of materialist dialectics lies in the internal contradiction of things and the ideas mirroring them. That is why they all agree that the law of the unity of opposites and internal contradiction makes no sense "since, in its real becoming, a thing is at the same time itself (in one correlation) and not itself (in another correlation)..." [34], as Maritain thinks.

Unfortunately, the Polish logician Kazimierz Ajdukiewicz also thinks that way. In his opinion, Zeno's famous aporia on movement was due to the fact that the famous Greek philosopher did not know that the sum

[31] M. Merleau-Ponty, *op. cit.*, p. 178.

[32] Emile Bréhier, *Les thèmes actuels de la philosophie*, P.U.F., 1956, p. 62.

[33] Jean Hyppolite, *op. cit.*, p. 110.

[34] J. Maritain, *op. cit.*, p. 28.

of infinite geometric sequences is finite [35]. Ajdukiewicz is angry with Marxists because they still believe in the contradictory character of movement long after mathematics has solved this problem. However, mathematics measured the quantitative aspects of movement, whereas Zeno referred to the very quality of movement. Zeno refuted the essence of movement, and mathematicians measured only its appearance. Zeno asked himself *how* Achilles could reach the tortoise, whereas mathematicians computed *when* Achilles could reach it. Mathematicians solved a problem other than that set by Zeno, to say nothing of the fact that the solution provided was also highly contradictory: the *infinite* geometric sequences have a *finite* sum.

Marxism has already answered a similar "objection" meant to set metaphysics in place of dialectics. "This objection is *unjust*: (1) it describes the *outcome* of movement, not movement itself; (2) it does not show, it does not involve in itself the *possibility* of movement; (3) it shows movement as a sum, as a sequence of states of *rest*, viz., it has not removed the (dialectical) contradiction, it only covered it, hid it, attenuated it" [36], Lenin replies.

Everything is contradictory, both as structure, and as process. Everything is *in the same correlation* itself and otherself; everything is *at the same time* at one place and at another. By its individual determinations it is another, by its general ones — it is the same. Its individuality distinguishes it from all the other things, whereas its generality identifies it with all the other things of the same kind. Ajdukiewicz would find here no contradiction. In his opinion, the thing is the same in a *particular* correlation, and another one in *another* correlation [37].

Disconsidering the fact that the individuality and generality of things are not segmented, but intertwining, passing from one into another. Ajdukiewicz considers only the outcome of movement, not movement itself; his logic refers to set-up contraries, not to the setting-up of contraries.

As he was not aware of the fact that movement can't be reduced to a *sum of rest-sequences* and of the fact that the moving cannot be, at a given moment, *in-between* two places, Ajdukiewicz also fails to transcend dialectics, and, indeed, holds it back to metaphysics.

Another metaphysician — M. Aebi — thinks that dialectics is founded on two sophisms: fallacia secundum quid et simpliciter and the confusion

[35] See Kazimierz Ajdukiewicz, in *Deutsche Zeitschrift für Philosophie*, no. 3, 1956, p. 322.

[36] V. I. Lenin, *Caiete filozofice* (Philosophical Notebooks), p. 234.

[37] See K. Ajdukiewicz, *op. cit.*, p. 338.

between contrariety and contradiction [38]. Aebi could not understand that unlike "non-red", which exists only *secundum quid*, "non-individual", for instance, also exists *simpliciter* since it means "general". Non-red can be only a particular thing which is other color than red. Non-red has no independent, but only relative existence. Non-red means nothing more than non-red. However, non-individual has a relatively independent existence. It is determinate. It can be but the general. It is clear why with metaphysicians today the very phrase "dialectical materialism" is a "contradictio in adjecto", a logical scandal. They cannot understand the superiority of Marx's synthesis of materialism and dialectics, which qualitatively transcends both metaphysical materialism and idealistic dialectics.

Some of them have come to the same conclusion only setting out from the metaphysical idea according to which materialism is monistic and dialectics is dualistic: "... how it is possible for Hegelian metaphysics to integrate into a system two apparently irreconciliable components: the crisis of the principle of non-contradiction and the maintenance of the concept of substance?" [39], Eduardo Nicol asks himself. "Dialectical opposition", Aline Lion says, "is characterized primarily by the tendency to give up reduction of these two terms to only one" [40]. Urging the "true dialecticians" to overcome this "painful contradiction", Aline Lion goes on: "If the subject were but one, the error would be impossible; and if the individual and society were but one, there would be no laws, no need of laws, either — as Plato, Marx, Engels and Lenin thought" [41]. In other words, back to dualism hence to idealism, since, unlike Descartes' dualism which pushed forward to materialism, Aline Lion's dualism draws back to idealism. Cartesian dualism was directed against dialectical materialism. Always the same inability to understand dialectical units! Dialectics is not incompatible with monism. Dialectical materialism illustrates first of all the object only in its self-dynamics, whereby it generates its opposite — the subject — and thus starts to know itself.

Concerned with "surpassing" Marx, Jean Hyppolite writes: "Whereas Hegel, thinking on history, ended by fully transcending it, Marx stays in the history he wants to change; hence, the ambiguity of this thinking

[38] M. Aebi, "Système naturel des sciences", in *Actes du XI^ème Congrès int. de philos.*, 1953, vol. II, pp. 242—243. Aebi refers to the sophism deriving from absolutizing a relative existence. It is a sophism to say that non-white exists only because *this* white horse is non-white. What exists only "secundum quid" does not exists "simpliciter", as well.

[39] Eduardo Nicol, "L'opération cartésienne et la présence dialogique de l'être", in *Rev. de métaphysique et de morale*, 1956, nos. 3—4, p. 303.

[40] Aline Lion, "Notes sur une nouvelle formule du mouvement dialectique", in *Actes du XI^ème Congrès int. de philos.*, vol. XI, p. 212.

[41] *Ibid.*, p. 213.

of history which is at the same time history..." [42]. And as he assumed to have proved Marx' "inferiority" to Hegel, he concludes: "Anyhow, transcendence of Marxism will be possible for us only after having seriously considered *the philosophical pre-suppositions* and *the structure* of the very Marxist work" [43].

But history is also a contradictory process and a unity of opposites: the dialectical unity between necessity and accident, between constancy and variability. Only a theologist can believe that it is only temporariness and vanity. By discovering the objective laws of history, Marx succeeded in rising above history without departing from it. From the height of Marx' genius, history started to know itself, at a considerably higher rate. History itself has created Marxism, in order to make a leap higher in its development. It is quite clear that Marx can be neither surpassed nor developed outside Marxism. Originality in philosophical creation does not mean transcendence of Marxism, but its creative development.

Not long ago, Pierre Naville, another "Marxian" distinguished between Marxians, Marxologists and Marxists: "Marxian — relating to Marx; Marxologist — "scientifically" "dealing with Marx"; Marxist — assimilating Marx' ideas" [44].

However, Marxism cannot be developed by Marxians or Marxologists, either; it can be developed only by Marxists. Henceforth, the endless road to absolute truth and the development of Marxism are coincident.

[42] Jean Hyppolite, *op. cit.*, p. 167; J. Lacroix says that "there is no history for a purely historical being" (*op. cit.*, p. 47).

[43] *Ibid.*, p. 168.

[44] Pierre Naville, *Marxistes, marxiens et marxologues*, in *Critique*, November 1957, no. 126, pp. 969—970.

VIII. HUMAN MIND AND THE FUTURE

The future as future exists only to people. To other beings, the future is an unmediate extension of the present, just as the surrounding space is an unmediate extension of their own body. Man alone is capable to build a particular future since he alone has been able to create "the means" whereby the present can be kept somewhat away. By devising the tool and language, the main means of production and communication whose importance does not lie in what they *present* but in what they *represent*, man started acting in-between presence and absence: the past and particularly the future. Any past has been some time a future. The distinction between present and past is subsequent to that between present and future. Man has devised the means to add to the present what it lacks so as to change the future into the present. The future is the most human dimension of time.

But unlike the present, the future is not perceptible, it is only intelligible. Future cannot be reached through feelings, but only through thinking. Man is not content to live the irreversible course of events, he attempts to anticipate it and act on it stimulating or changing it. The future has always been a cause of unrest, of worry and of hope. But this does not mean that the future is an outcome of fear, of expectation or of strife. The future is a possibility that people can turn into reality with the help of the means of production and communication they have devised. Through speech, people anticipate the future and through tools they turn it into the present. Abstraction, formed and developed through the metaphysical energy of speech, is the major means to know the future. Abstraction is no "coward evasion" from the present, but "critically outdistancing" the present, in order to know the future, as well. The present itself is better known in the light of the future. That is why the wise knows reality more *concretly* than a petty trader. Through abstractions people succeed in reflecting the universal and repetitive character of the essential properties of things, and thus penetrate into an ever more distant future. As he is the only one aware of his mortal character, man is at the same time the only being struggling for a "further future". Abstraction is man's greatest victory over the ephemeral. Through abstractions, people succeed in rising above the flow of the present and of impressions, onto the more constant height of concepts, wherefrom the future can be seen

or at least foreshadowed. Man has devised the implement, in his struggle against temporariness, to perpetuate labor gestures; he has devised speech to preserve truths, has devised writing to conserve speech, has constructed philosophic categories to get nearer to eternity. However, philosophic categories are "eternal", not because "atemporal", but because they reflect the high repeatability of the most essential character of things.

The very human mind — the intellect, thinking, reason, consciousness — has been shaped and developed in the growing tension between living the present and anticipating the future. Man's spirituality lies in his capability to rise from perception to conception, from assessment of the present to prediction of the future, from the material to the ideal. Mediating the present-to-future correlation, the man-made means also mediate the object-to-subject correlation. Only that the "subject" is not *prior* to these means, it is formed and develops alongside of them. We should never forget that the means of production and of communication — the tool and speech — themselves determine the "second relate" of the correlation they mediate: the subject. I think this is how the famous Marxist thesis according to which spirit derives from matter but is not reducible to matter, as it is its contrary, should be understood. Matter does not generate spirit directly but through the mediacy of means. The most rudimentary means already materialize an incipient spirituality. The unchopped stone found in nature turns into a means the moment it is being used to fulfill an intention. In this way it is clearer why man is being humanized all the while humanizing his environment, while imparting human aims to the world.

All the approaches of human mind — analysis and synthesis, induction and deduction, thesis and hypothesis, prediction and production — start from differentiating the present into past and present, by devising the tool and language.

1. EXPERIENCE, EXPERIMENT, PRODUCTION

Reflection is a natural phenomenon. Any thing reflects the influence of the other things on it. But lifeless things can reflect but the past and the present alone. In non-living nature, reflection is non-anticipative. Reflection becomes anticipating only in living matter.

Unlike lifeless things, steadily wearing out under the action of the other things, animals get adapted to their environment and by assimilating it, they, themselves, develop. Adaptation implies the anticipative reflection of the environment. Animals are compelled to reflect the future, too.

The possibility that animals have to anticipatively reflect the events that occur one after the other in their environment is provided by the fact that the phenomena they are adapted to have similar, hence partially repeat-

able, characteristics. But as animal reflection is unable to aim at characters other than the similar individual characteristics of things and processes, it can anticipate only an *unmediate* future, related to the present. With animals, time is no more than the direct extension of their acts, much as space is no more than the direct extension of their bodies. They are able to avoid obstacles, not to solve problems. They experience facts, they do not make experiments.

Their experiences are preserved in biological structures, not in logical structures.

Only human thinking is capable of an anticipative reflection, which should cover the spatio-temporality of the world in its infinity. Only man can go beyond similar characteristics and reflect the similarity of things, as he alone is endowed with the only instrument that helps him get through the layer of individual characteristics: language. It is only by means of language that individual characteristics can be overlooked and thus achieve reflection of the general characteristics. Using the *same* words whenever referring to *similar* things, people succeeded in doing away with differentiating individual characteristics and recording the reflection of general and identical characteristics in logical forms. That is why man alone can pass from sensory experiences to rational suppositions and onto their experimental checking.

Man is the only working and speaking being, and he is also the only being capable of reflecting the general out of individual things and processes. By reflecting the general, human thinking also reflects the repeatable. That is why man is capable of an unlimited anticipative reflection. There are no logical limits, but only historical ones to human thinking as far as the anticipative reflection of reality is concerned. There is eternally a limit, but there is no eternal limit.

It is the logical character of the human mind that accounts for its unlimited anticipative capability. By structuring the reflection of the most general and essential characters and relations in reality, the logical forms of human thinking approach both spatial infinitude and temporal infinitude. Extreme generality, which gives the illusion of aspatiality, is at the same time extreme repeatability, which gives the illusion of atemporality. *Ad infinitum*, space appears as aspatiality and time as atemporality. From the height of logical forces, the anticipative power of the human mind has no barriers. Through identification of the essence of things, human knowledge rises from mirroring the finite real to reflecting the infinite possible. By means of logical forms, human knowledge performs the qualitative leap from anticipating the immediate future to anticipating the mediate future, from biological to anthropological anticipation.

Through *practice*, the subject comes in direct touch with the object three times; first, through *experience*, second, through *experiment* and third, through *production*; experience is undergone, experiment is induced to corroborate a hypothesis, and production is accomplished to change things.

In search of the future, knowledge follows the path of induction from experience up to hypothesis and via hypothetical deduction, down to a singular judgment experimentally confronted with reality to go up again — if the hypothesis is corroborated by reality —, and formulates the law wherefrom the predictions required by the production process can be inferred.

Thinking explores the future by means of hypotheses, it gets to know it in the light of predictions and renders possible its transformation into the present through plans. The great solutions are devised by those advancing the way the world itself does.

However, while working on the development of means, the goal should not be forgotten: *production* is for man, not *man* for production.

2. ANALYSIS AND SYNTHESIS

In order to state accurately the place and role of analysis and synthesis in the process of knowledge, the qualitative differentiation between how *the general* and its component parts make up a unity and how *the whole* and its component parts set up as a unity should be clarified. Whereas an individual thing necessarily has the general characteristics of the kind it belongs to, a part of a thing does not necessarily have the characteristics of the whole it belongs to. A part does not enjoy the characteristics of the device it belongs in, but every man is a working, speaking and thinking being.

The general consists of everything that is *identical* in the various things of the same kind; the whole consists of the *structure* that its various component parts achieve, establishing certain interrelations. The general is the extension of the *essence* of things, and the whole is primarily the structure of things; the general is in every individual thing which belongs to the same kind whereas the whole is not to be found in each part.

From the viewpoint of knowledge, the individual is sensitive, the general is intelligible. Knowledge cannot pass from mirroring of the individual to reflection of the general unless by a leap that induction alone can achieve. Nevertheless, the part and the whole are on the same plane. That is why the course from knowledge of the parts to knowledge of the whole is possible without passing from a stage of knowledge to another. The operations whereby knowledge decomposes the whole in its component parts in

order to surpass the global reflection of a thing, and recomposes the whole out of its component parts are called analysis and synthesis. Knowledge passing from mirroring one part alone to mirroring the whole is no induction, it is synthesis, since it does not end in revealing the general, but a structure.

Abstraction as the outcome of analysis is inferior to abstraction as the outcome of induction. The former is concerned with the part of a whole, the latter with the general in the individual.

By analysis and synthesis, archaeologists have re-composed whole inscriptions from a few letters only, and paleontologists whole animals from a few animal bones.

It is through analysis and synthesis that knowledge of several parts may lead to knowledge of the whole. By reconstituting the structure of the object by which an essence gets phenomenalized, analysis and synthesis make knowledge approach the inductive leap of revealing the essence.

In the beginning analysis and synthesis were *material* operations that acted on the individual character of things, aiming at the structure of things, at the correlations of *the whole to its constituent parts.* Before being *logical* operations, analysis and synthesis were and still are *material* operations, both philogenetically and ontogenetically. That is why animals are also capable of analysis and synthesis. Analysis and synthesis provide ever better image of the environment to the organism. Analysis and synthesis point to the interrelationship of the constituent parts of a whole and thus push reflection up to the similar characteristics shared in common by several wholes. The greater the animals' ability to analyze and synthetize the *things* they came across, the *situations* they are in, or the *processes* they take part in, the more adapted to the environment they are. A nest is a synthesis that implies analysis. Similarly, unlike human thinking, the electronic brain can only deduce *analytically* a part out of a whole, it cannot deduce *inductively* the general out of the individual things of the same kind.

What structuralism rejects, in the first place, is the fact that every thing phenomenalizes an essence and is the effect of a cause. When deprived of essence and cause, the thing would be reduced to phenomenon and event to chance. Before fate, human action would lack all grounds. Essence is the hard core of every thing, and cause is the "obstinacy" of every process. People can change the world only by knowing them.

Hostility to the category of "essence" and preference of the category of "structure" are both stated in the very birth-certificate of neopositivism. "Scientific description can include only the structure of the objects, not their essence", states openly the *Manifesto of the Vienna School.*

Neopositivists consider that the world is but a canvas made of all changing phenomena, behind which there are no essences or causes either.

Lacking essentiality, phenomena co-exist and follow one after another in a random succession on the screen of our sensitivity, whereas reason, which is unable to penetrate any further, is ascribed the task of classifying sensations. If reason is forbidden to seek the essence and cause of things, it is confined to investigating their structure and function. But the function of a thing is no more than its essence *in action*. If essence can be understood only in the light of the unity between the individual and the general, function can be understood only in the light of the unity between cause and effect.

It is only natural that whoever refutes the human mind the right to seek the essence and cause of things, underrates the value of induction and overrates the value of analysis. In structuralist philosophy, induction is atrophied and analysis hypertrophied. Fatalistic resignation is substituted for realistic action...

3. INFERENCE

Inference is the course of thinking from facts to ideas and from ideas to ideas, it is the inductive and deductive approach of thinking. The question: where does the surplus information supplied by the conclusion of an induction as against that provided by the premises come from? can be answered only by clasifying the dialectical leap whereby knowledge rises from the sensory onto the rational stage. The question of the correlation of induction to deduction is the logical expression of that of the sensory-to-rational gnoseological correlation. That is why the answer to the *logical* question of the correlation of induction to deduction depends on the answer to the *gnoseological* question of the experience-to-reason correlation, which in its turn, ultimately depends on the answer to the *ontological* question of the individual-to-general correlation. A satisfactory answer to the question of the induction-to-deduction correlation can be provided only in the light of the unity of ontology, gnoseology and logic. The dialectical unity between *induction* and *deduction* (= object of logic) is governed by the dialectical unity of the *sensory* and *rational* (= object of gnoseology) which, in its turn, is governed by the dialectical unity between the *individual* and the *general* (= object of ontology).

The question of the knowledge transition from mirroring *individual things* of the same kind to reflecting the *kind* they belong to has been of major concern to the human mind from the real beginnings of philosophy until today.

All the attempts at substantiating, strictly logically, the validity of induction failed to do so. Induction has remained the big scandal of reason.

How is it possible to say that every A is B as long as only a finite number of A can be known? Thinking must assume the contradictory unity between induction and deduction.

As a rule, it is held that any ascending approach to knowledge is induction. As a matter of fact, the ascending approaches of knowledge are of four kinds:

a) from sensory to logical;

b) from particular judgments to general ones;

c) from less general to more general;

d) from general to universal.

The transition from sensory to logical is the generalizing and abstracting process which ends up in notion-formation; the transition from particular judgments to general judgments is the process whereby knowledge passes from recording particular facts to recording their laws; the course from less general to more general is the process whereby thinking rises from consequences to principles, from theorems to axioms. Inference of the most general principles from the general laws formulated by the various particular sciences is the process whereby thinking rises from the general to the most general, from a general of a particular degree of generality to utmost generality, to the universal.

Strictly speaking, only the course from particular judgments to general judgments is called induction.

The course from sensory to logical, through the linguistic activity of human intelligence, is a gnoseological process where an outstanding, though often neglected, role is played by both affectivity and fantasy; the course from special to general is a logical process which does not resort to experience. Only the course from particular judgments to general judgments is a process equally involving experience and logical thinking; but everything that belongs to logical thinking is of a deductive nature; induction is only the leap from gathering particular facts to formulating the laws that govern them. Induction should not be mistaken for the deductions that its development involve. It is true that induction does not begin, develop or end without deduction, but the unity between induction and deduction does not multiply their opposition, on the contrary, it assumes it.

Starting from a number of *facts*, Galileo Galilei formulated the *law* of falling bodies. It is true that a falling apple is enough for an exceptional mind to develop the law of gravitation... Throughout the history of scientific discoveries, chance has never been more than favorable circumstance; the discoverer's technical and theoretical training has always been the decisive factor. Otherwise it would be ununderstandable why,

up to Denis Papin, steam has long pressed the covers of billions of pots to no avail, why in the history of chemistry, big discoveries were not those of ethicians, but those of chemists.

Knowledge proceeds from

$$\text{induction: } \frac{x, y, z \text{ are } B}{x, y, z \text{ are } A} \quad \frac{}{A \text{ is } B} \qquad \text{to deduction: } \frac{A \text{ is } B}{x_1, y_1, z_1 \text{ are } A} \quad \frac{}{x_1, y_1, z_1 \text{ are } B}$$

Having come to this conclusion, induction is replaced by deduction. Therefore, induction ends by a deduction: the conclusion of induction becomes the major premise of deduction.

If induction ends by a deduction, this means that, at a given moment, knowledge passes from induction into its opposite, viz., deduction, but by no means can this mean that induction is deduction.

Although opposites, induction and deduction are interdependent; within this contradictory unity, induction is primordial as against deduction, since it is the inductive leap that makes deduction be a window to the future; between induction and deduction there is also an interpenetration process whereby knowledge constantly passes from induction into deduction.

Therefore, whereas synthesis, which aims at the whole, is integration proceeding on the same stage of knowledge, first sensory and then rational, induction, which aims at the *kind*, is generalization, which rises from the sensory stage onto the rational, while deduction, which aims at the various degrees of *generality*, is explication, which proceeds only on the rational stage.

The unity between induction and deduction is no more "scandalous" from the point of view of logic than the unity between matter and spirit from the point of view of anthropology.

4. THESIS AND HYPOTHESIS

Unlike non-living matter, which reflects the environment non-anticipatively, living matter reflects it anticipatively. But, whereas the other living beings cannot transcend reflection of an immediate future, man is capable of relatively unlimited anticipative reflection.

Anticipative reflection crystallizes out primarily as *hypothesis*.

Assessing phenomena and effects is not enough to get knowledge of things. Knowledge of essence and of causes is indispensable, too. Experience is highly necessary, but insufficient to know essence and cause. With experience, knowledge as a process is only at the beginning. And before

reflection of essences and causes has been reached, it stops for a longer or shorter time at the level of hypothesis.

Knowledge rises from experience to hypothesis through induction. The inductions that make human knowledge rise from experience to hypothesis are of several kinds. The most fruitful is the induction whereby knowledge passes from the statement that some S are P to the assumption that any S is P, or from the statement that some *B* are determined by *A* to the assumption that if *A*, then *B*. The inductive leap from mirroring of the individual to assumption of the general reaches the formulation of a hypothesis which tends to anticipate the behavior of any thing of the same kind and of any effect determined by the same cause.

The hypothesis is not confined to recording that this thing has this essence and that this effect has this cause, it also assumes that the same essence under the same conditions will become phenomenalized into the same effect. In breeding hypothesis, induction opens up the unlimited prospects of the future to human knowledge.

But by hypothesis man does not succeed in extending his knowledge of the future yet. Hypothesis is not yet anticipation, but only hope for anticipation, so far. In the ascending course of knowledge, **hypo**-thesis ranks lower than thesis; it is on a lower level than thesis; it is an *under*-thesis. Just like "hypotension" is below normal tension, so "hypothesis" is below thesis. Hypothesis is a question referring to a thesis, or rather a questionable thesis; in a hypothesis the thesis is not "posed", it is only "presupposed". Hypothesis is the condition, for a longer or shorter period of time, of a thesis ever since its inductive formation to its experimental checking.

But, as long as thesis is still questionable, it is no thesis yet but hypothesis. That is why, unlike thesis hypothesis is no logical, but "sub-logical" form. It is a *gnoseologic instance* in the advance of *knowledge* toward *logical*. Any logical form is declarative, thetic in character; hypothesis has no thetic, but *hypothetic* character; hence, hypothesis is no logical form. That is why hypothesis cannot be assessed as just or unjust. A hypothesis is just to the extent the thesis assumed does not run counter to logical laws or to the laws of reality, either.

Hypothesis, undoubtedly, consists of logical forms. But, all the while containing logical elements, hypothesis is, on the whole, an "infralogical" form. Characteristic of a hypothesis are not the logical forms it contains, but its interrogative tension.

The discoverer identifies the logical forms wherefrom he builds the hypothesis in the science of his epoch, but hypothesis derives from the needs of that collectivity he belongs in and from his own pursuits.

Before reflecting the world such as it is, the man of science imagines it. A discovery is a checked invention. Stressing the creative character

of knowledge one might say that the man of genius *devices* the world such as it is.

A hypothesis has two constituents: *thesis* and *interrogation*. The thesis asserts a predicate about a subject, or a relation about its relates, and the interrogation still *questions* the truth of this assertion. Within the hypothesis, thesis and question are not parallel, but intertwisting: the question penetrates the thesis and takes the place of the copula, or of the relation, and thesis forbids the question from replacing the predicate or one of the relates, as it may happen in a common question. A common question is a sentence where the grammatical predicate exists, but the logical one may be absent, as it may be replaced by the very question-mark. The question: "Who is this young man?" does not lack the grammatical predicate, but the logical one: "This young man is who?" or, rather: "This young man is?". This is also proved by the answer where the question mark is replaced by the predicates required: "This young man is a student!".

A relational sentence wherein the question-mark replaces one of the relates of the relation judgment involved can also be a common question: "X is whose father?". Answer: "X is Y's father". In a hypothesis, the interrogation concerns only the *copula* or the *relation*, the remaining elements of the thesis being necessarily known.

Doubtless, there are essential differences between a common question and a scientific hypothesis. Whereas everyday questions imply particular and contingent judgments, scientific hypotheses imply general and necessary judgments. Whereas the judgments that common questions require are mere *information*, which concern rather the past or a near future at most, the judgments that scientific hypothesis imply are *explications*, which anticipate the future in its infinite dimension. Finally, proper questions are curently asked *viva voce* to another *person*, whereas hypothesis asks the very *reality experimentally*. That is why the former are answered by people, the latter by reality.

It should not be overlooked that the probability of a hypothesis is considerably greater in the natural sciences, which are confined to existence judgments, than in the social sciences, which tend to value judgments, where determinism is steadily reversed to freedom, probability is smaller and potential surprise is greater. Planning of creation is more difficult than planning of production.

5. PREDICTION

Strictly speaking, the future can neither be seen nor foreseen; it can only be spoken of. That is why prediction is a more adequate term than prevision for anticipating the future.

From the general hypothesis ("Is every A a B?") thinking derives a singular hypothesis ("Is this A a B?"), that it checks experimentally. There is a qualitative difference between the induction rising from experience to hypothesis and the induction rising from experiment to thesis. The former is spontaneous, the latter scientific, since the experiment informs that the phenomenon behaves in keeping with the hypothesis.

If the hypothesis is the conclusion of a spontaneous induction and of a hypothetic deduction, prediction is the conclusion of thetic deduction. Reasoning, whose major premise is a thesis, is a thetic deduction and has a prediction as conclusion. Whereas a hypothesis is anticipation of the possible, prediction is anticipation of the probable.

That is why the major doubts of contemporary epistemology are related to the natural and societal laws and also to the possibility of the theses to reflect them. "There are no causes in nature, in the true meaning of the word. Everything is mutual cause and effect. Matter, which is pushed through a sequence of changes, lacking both order and reason, results in transient equilibria, subsequently broken, whose elements re-compose uninterruptedly other passing images", A. Bonnet de Viller writes. Whenever the metaphysical method is confronted with the dialectics of things, the non-dialectical researcher is disappointed and plunges again into the old Cratylism: not even once can you bathe in the uninterrupted flow of reality!

Cause and effect interwoven do not stop being cause and effect, and the transient character of "equilibria" does not frighten the consistent dialectician who knows that whereas contradiction is eternal, the unity of opposites is temporary.

"In spite of all appearances", the same author emphasizes, "two events are never identical under all their circumstances; that is why, as the consequences involved are never the same fatality we are actually subject to stay hidden to us". Obviously, the countless phenomena that the same essence is rendered manifest are not identical. If the permanent variability of phenomena is enough for us and we do not strive to get to their essence, then we are at the mercy of chance, and accident isolated from necessity turns into fatality. The author wants the readers to understand that in a world ruled by an incognizable fatality prediction is helpless.

However, there are not only phenomena in the world, but essences as well; there is not only chance, but laws, too. Knowing the essence, cause, law, people can anticipate phenomena, effects, occurrences. Prediction in anticipating the behavior of a phenomenon after its essence has been known.

To be efficient, social practice requires knowledge of essence and of causes. If aware of the cause, it can tame any effect. The effect that have the same cause and the phenomena with the same essence are similar; hence, they can be of similar use. People use phenomena and effects guided by knowledge of their essence and cause. That people can use the things in their environment, proves that the objective laws do exist and that prediction in the light of which action proceeded is accurate. This is not what the above-quoted author thinks. According to him "whoever says use, says change of the effects claimed to be necessary". Starting from the idea that "determinism rules out finality", he can no longer understand that finality is the subjective mode of objective determinism, that man tends to know and change reality also in the light of his aims. The aim is another way of reflecting the future. Finality is anticipation of some effect hoped for. By turning determinism into finality, the real temporal correlation is reversed, since the effect is changed to "cause" in the sense we speak of "the cause of socialism".

Future penetrates into the present both through aims and through predictions. But, whereas the aims are but the awareness of needs, predictions are explicative anticipations, which allow practice to change phenomena according to the aims set. Like prediction, the aim is an idea whereby abstract thinking comes to practice over the concrete. But to come true the aim needs prediction.

Prediction may be anticipation with a higher probability, since scientific induction whereby hypothesis turns into thesis is possible. Only scientific induction can accomplish the leap from experiment to thesis, through hypothesis-checking.

Only that, in the sciences dealing with man, special heed should be paid to the fact that the future is not reducible to mere extension of the present, that it depends to an ever greater extent on the followers' resourcefulness and their consciousness. History is not only "experienced" by people, it is also "made" by them. In the social sciences, prediction should consider both how things are, but also how we would like them to be.

Prediction must show us what is in store for us, and what we can get as well. Futurology should consider the determinism of the world and also people's freedom to change it.

The tendency of insufficiently humanized man to get free from any dialectical tension constantly pushes mankind either to worshipping the present or to worshipping the future. Presentism makes him sink in an enthusiasm deprived of tomorrow, whereas futurism deprives him of all happiness of today. Mythification of the future is as dangerous as mythification of the present. By our ideals, aims and plans, not only the present gets

in touch with the future, but the future, too, gets in touch with the present. Otherwise, present work would be aimed at a future that no present will ever enjoy. Unlike the heavens of various religions, socialism is a future meant to steadily turn into present. In the society which is now being prepared, without classes or class-struggle, where equality and steady differentiation will be interwoven, philosophy, by its critical and prospective essence, will finally be able to provide a balance between present and future.

IX. PHILOSOPHICAL REHABILITATIONS

Rationalist and scientist positivism, followed by irrationalist and anti-scientist existentialism, have succeeded, in the century past, to arouse growing suspicion on some fundamental approaches of the human spirit. When language was reduced to a conventional system of sound and written signs where thinking became superfluous, positivism could no longer prevent irrationalism from avoiding the "linguistic obstacle" that hindered the path to knowledge. From a *tool* of thinking, language has turned into its *obstacle*. Some try to chase away the metaphor, other hypertrophy it, to break the "wall of speech" separating us from the essence of the world. The infralogical is shown at times as illogical, at others as superlogical. Dialectics is reduced to complementariness, tautology is taken as void, and paradox is seen as a blind alley of reason. The prejudice according to which sophists were sophism-makers is being perpetuated. Intuition is despised by some and eulogized by others, whereas humor is at most allowed.

Genuine dialectics overcomes these compromising exaggerations and restores the various acts of human spirit to their roles in knowledge.

1. LANGUAGE AS "OBSTACLE"

That language is no mere attire of reason, but its very body accounts for the opposition of irrationalists. The irrationalists who reduce knowledge to the affective intuition of Nothingness, look down upon language as an obstacle to the true understanding of the world, as an integral part of the original sin.

"Helping me act upon *Another*, language hides it from me; it places a veil between ego and non-ego", Théodore Ruyssen remarks. J. Vernay also complains that the "matter" of discourse (language) is to the writer both the mediacy required by creation and an inevitable betrayal of the harmonies devised in the quietness of thought.

Vladimir Jankélévitch is even more categorical. "As a matter of fact", he writes, "language is no mere tool used to communicate; this tool is also an obstacle, and it does not convey the meaning unless by hindering it. Language is an obstacle-tool!" Irrationalism reverses the hierarchy between affectivity and thinking which was set-up in the process of

knowledge, and accuses language of setting up logical forms which prevent being from getting in touch with non-being.

Martin Heidegger, too, admits that "only to the extent man speaks he also thinks, and not the other way round as metaphysics still believes", that "only a speaking, hence thinking, being can have a hand and, by handling something, perform a hand's work". Only that with Heidegger thinking is not the rational course of logical forms, but the intuition of Nothingness at the moment of dread. The speech in which and through which thoughts develop, comes in-between being and non-being. Only the moment "dread breaks our speech off" are we able to have a glimpse of the Nothingness. That is why Heidegger indignantly says that "thinking about thinking proceeds as *logic* in the West" and that "what calls for thought, is mostly that we do not think yet..."

However, affectivity is not meant to avoid reason, on the contrary, it should activize knowledge up to its structuration into logical forms and then prevent it from fading away, becoming dry and trite.

Language as a dialectical unity between thinking and speech has not only a cognitive function, but an emotional one, as well: it does not hinder, it assists the course of knowledge, the same as air does not hinder, but assists the birds' flight. Language is not only a tool for conveying already developed thoughts, it is also a tool for developing thoughts. An idea which is not crystallized in a particular phrase is not an idea yet, but just a feeling of intellectual unrest. Thoughts develop concomitantly with their speech rendering.

Language shares in the discovery, preservation and conveyance the unchanging and repeatable properties of things. Primarily as a means of communication, language has turned into the main means of knowing the essential in things.

In the beginning, language was meant to convey urges rather than information; it has long been a means of action rather than a carrier of ideas.

Language gets to the essence of things by its infralogical forms, especially the metaphor and the word-order where the people's pragmatic-affective life crystallizes out. Style is not added subsequently to a language with an already developed content of knowledge. Style is no holiday attire of some commonplace, it is a tool indispensable to the process of knowledge and transformation of reality. In language, knowledge takes on logical forms directly related to infralogical ones.

That the pragmative-affective life, crystallized out in the infralogical forms of language, is subordinate to reason and structured into the logical forms of knowledge is obvious when the metaphor and word-order obscures the meaning instead of conveying it. When styllistic performances are no longer serving an idea, they can stir no one any longer. Language is meant

to assist the course of knowledge and its conveyance, not to hamper it. Language is shocking to people's sensitivity and makes them think about it. A language addressing sensitivity alone, as literalism would like it, would have only a therapeutical value: to discard outdated significations to make room for newer ones...

Language cannot be an obstacle to thinking only because it cannot render experiences otherwise than by turning them into ideas: language is meant to convey ideas, just as the apricot tree is meant to yield apricots.

2. METAPHOR

There is a tendency to chase the metaphor away from present-day culture. The disillusions following the shake-up of the various dogmatisms of the centuries past, from Aristotelian logic and Euclidean geometry to Newtonian physics and apriorist metaphysics, have ultimately led to a growing distrust in the subject's ability to know and master the object. The metaphor is blamed for "pegging" knowledge, hence for preventing it from developing.

Setting out from the idea that "the very aim of myths is to immobilize the world", Roland Barthes suggests that "this transparent speech inaugurated by Camus' *L'Etranger* accomplishes a style of absence, almost an ideal absence of style". In his opinion, "Style is no more than metaphor, viz., an equation between the literary intention and fleshly structure of the another; that is why "the intellectual's writing operates as the paradoxical sign of nonlanguage and enables society to live the dream of a communication deprived of system (deprived of institution), to write without writing, to convey pure thinking without developing a parasite-message".

But language is not only a tool for conveying thoughts but also for developing them. Just like the myth which is a macrometaphor, the metaphor, which is a micromyth, has not only an expressive function if referred to ideas, but a constitutive one, as well. It is only humanly that man can know the world. The subject can get knowledge of the object only subjectively. *Objective* dialectics between the individual and the general can be known only through the *subjective* dialectics between sensitivity and reason. Or, the metaphor is precisely the carrier providing the uninterrupted flow between sensitivity and reason. To discard it is to bring man "below" culture in the animal world, or "beyond" culture in the machine world. Man is disanthropologized without culture.

Aestheticians dwelt more widely with the metaphor than logicians did; that is why its expressive function was investigated more extensively than its cognitive one. But through metaphor thinking proceeds not only from

the general to the individual, individualizing the general, but primarily from the individual to the general, generalizing the individual. Through language people come to know the world and take a particular stand to it.

"Metaphor" means "transport". *Meta* means "after" and *phoros* means "carrier". The metaphor carries a particular meaning not only from the abstract to the concrete, but primarily from the concrete to the abstract.

"Omnibus" which in Latin meant "for everybody" designated, in the past century, "a big horse-driven carriage". After the automobile had appeared, the metaphoric force of speech allowed the prefix of the second word to be joined to the ending of the first, hence "autobus" meaning "automobile for everybody". Later on, when the omnibus secured its mobility through trolleys — the word "trolley-bus" appeared...

Likewise, "ma" probably meant in old Latin "a tree trunk with branches emerging thereof"; later, as "mater", it meant "mother" and as "matter" it came to mean *the substance of reality*.

Rising from the individual to the general, the metaphor leads to the setting up of a notion, whereas descending from the general to the individual, the metaphor leads to enhanced expressivity. In the former case the metaphor is constitutive or cognitive, in the latter it is expressive or plasticizing. The cognitive metaphor reflects first of all knowledge of *the object* by the subject, and the expressive one mainly renders the *subject's* attitude to the object.

In either case the metaphor secures communication between sensitivity and reason: in the scientific language the metaphor rationalizes the sensitive and, in the artistic one, it sensitivizes the rational. The cognitive metaphor *dies* the moment the concept is born; expressive metaphor *implies* the existence of the concept. Naturally, from a particular stage of cultural development onward, the same metaphor can be cognitive, expressive, heuristic and emotional as well. For the artist, the metaphor is ambivalent: no genuine artist shall confine to adorning old ideals with new metaphors; he will use a metaphor wherein the concept develops alongside experience.

Novel ideas can appear only in the field lying between the creator's sensitivity and reason, which is criss-crossed continuously by the metaphoric force of words.

The contemporary attempt at de-metaphorizing knowledge cannot end in ruling out the metaphor, but only in stopping the inflation of devalued metaphors. Culture is not possible without metaphor. When a particular metaphor begins to hamper the idea in the emergence and development of which it also took part, an "iconoclastic" moment is required when the trite metaphor is replaced by another new one, which is capable to stimulate the development of creative thinking. One can speak of very old metaphors and myths, but not of very old concepts. The word "atom" is the same

it used to be two thousand and five hundred years ago, but the concept of atom is quite different today. The Promethean myth is the same as 3,000 years ago, but its meaning is by far richer in the era of atomic energy... However, meanings cannot develop unless in and through metaphors.

3. INFRALOGICAL

Words hint at the general in things, and also convey people's particular attitude towards them. Not only the rational reflection of the object, but also the subject's pragmatic-affective responses to the object crystallize in the grammatical structure of language. The former is structured in the logical forms of language: notions, judgments, reasonings, the latter — in the infralogical forms of language: metaphor, word order, intonation, rhythm, flow-rate, etc. These forms of language are not "prelogical" since they do not precede logical forms, they are not "extralogical" as they are not indifferent to logical forms, nor are they "illogical" as they do not oppose the development of logical forms; they are "infralogical" as they take unmediated part in the crystallization of logical forms. In language, infralogical forms are primordial, though not prior to logical ones. An infralogical form crystallizes, indeed, the pragmatic-affective response of a subject, but it is always referred to an object, hinted, at least implicitly, by a logical form.

By its logical forms, language identifies people, whereas by its infralogical forms it distinguishes them. People begin to take hold of the environment by reacting in a *different* way to the phenomenal differences among things before they have come to *identically* reflect their essential identity. In a world where essences are phenomenalized, people begin to conquer nature by acting on the sensitive embodiments of the intelligible, hence reacting to a greater extent to dissimilarities rather than to similarities. The wealth of concrete words at the expense of abstract ones in the language of primitive people is unanimously acknowledged.

Before it was able to construct the logical forms of reflecting the essential by transcending the sensory representations of the phenomenality of things, language had traversed a long period of time when its infralogical forms prevailed. Originally, speech had a considerably greater contribution to rendering sensory-affective life and influencing the will of action of collocutors than to building the logical forms of thinking. The imperative need for collaboration in their struggle with nature made people develop language as a *means of communication* above all. But, in the early history, people did not have "theories" but only "urges" to convey to one another. Language was meant *to move* in order to achieve harmonization of actions

with the course of events, rather than to provide information on the essence of things.

The more backward people are, the greater the wealth of infralogical forms and the poorer the stock of logical forms in the language they speak.

The extensive and intensive processes of social practice made people overstep the sensory reflection of the individual similarities and dissimilarities among things in order to reflect ever more general properties. By conveying the various approaches to the same reality, the infralogical forms of language do not prevent, on the contrary, they direct knowledge to discovering the general properties of things.

The fact that the Latins started from the image of birth, *genesis*, and the Germans from that of community, *allgemein*, could not prevent either of them from reaching the same notion about the general.

What must necessarily be borne in mind is that the grammatical arrangement of language through crystallization of the infralogical forms of thinking takes part in the setting up of logical forms, not only in their rendering. After pushing knowledge as deep as the essence of things, the infralogical forms of language prevent it from becoming dry and trite. The pragmatic-affective attitudes, which are set up in the infralogical forms of thinking through the grammatical organization of language, are the main source of originality in knowledge.

From the genetical point of view the infralogical forms of language prevail over its logical forms, whereas from the systematical point of view they are subordinated to the latter.

An original phrase contains much more compressed thinking than a commonplace. Making unrest turn into thought is what a phrase is essentially intended for. This does not mean that thinking is reducible to language or that language hampers thinking. Language opposes thinking much as material strength opposes building.

4. DIALECTICS

The concept of "dialectics" though familiar is not self-understood yet. Some call themselves dialecticians while continuing to think undialectically, others refute dialectics, although, sometimes, reality makes them think dialectically at times.

Ferdinand Gonseth, founder and director of the *Dialectica* journal, reduces the dialectical unity between the sensory and the intellectual to a relationship of complementarity between experiment and statement, where the latter can only accidentally come across the former. "The definition", he writes, "is an internal procedure of the scope of the statement: it allows no conclusion on the scope of the experiment". In other words,

theory does not reflect reality, it orders more or less coherently, uncontradictorily a particular experience. After refuting the validity of dialectics, that he otherwise mistakes for its mechanistic deteriorations, Jacques Monod considers the organism as "captured, preserved chance, reproduced by the mechanism of invariance and, thus, converted to order, rule, necessity". That is precisely what dialectics holds: chance turns to necessity and necessity is rendered manifest through chance, since between chance and necessity there is a "dialectical unity".

Every thing is a dialectical unity, viz., a unity of two fundamental opposite and interrelated properties in an uninterrupted interpenetrational process during which a changed characteristic ultimately determines the change of the other.

The dialectical character of every thing is accounted for by the four basic properties it implies:

a) opposite
b) inseparable
c) asymmetric
d) self-dynamic.

They are *opposite* since a third basic property is impossible; they are *inseparable* as each of them is a function of the other; they are *asymmetric* because one is primordial, the other secondary; they are *self-dynamic* because they steadily interpenetrate and develop without any action from the outside.

The progressive self-dynamics of things proceeds by changes in the primordial characteristics up to the moment when the secondary characteristics are changed, and so on. Phenomenal characteristics go on changing until a new essence is phenomenalized.

However, the two opposite, inseparable, asymmetric and self-dynamic features can be illustrated by various pairs of categories. The *individual-general* categorial pair illustrates them as far as *space* is concerned; the individual is *somewhere*, the general is everywhere. The *variable-constant* pair of category illustrates them in point of *time*; the variable is the instant, the constant is duration. The categories mirroring them in point of *repetition* are *difference* and *identity*: the difference is never repeatable, the identity always is. As far as *the possible* is concerned, the two sides of any object are reflected by the categories of *chance* and *necessity*: a chance may materialize or not, but necessity can't fail materializing. The pair of categories *quantity-quality* mirrors the dialectics of things as far as *measure* is concerned: quantity is measurable, quality is not. The categories *phenomenon-essence* illustrate the dialectics of things in point of *depth*: the phenomenon is the superficial side, the essence is the deep one, etc...

Therefore we can go into the dialectics of things by means of many categorial pairs. All categorial pairs are illustrative of the same dialectics from various angles. The individual, the variable, the continuous, difference, chance, quantity, the phenomenon, etc., on the one hand, and the general, the constant, the discontinuous, identity, necessity, quality, essence, etc., on the other, are coincident categories. What should be necessarily stressed is that the primordial property is always sensitive and the secondary one intelligible, that to change the essence the phenomenon must be acted upon, that the phenomenon cannot be mastered unless its essence is known.

The dialectical unity between the two dimensions of every thing has caused — through practice — first, the dialectical unity between the two stages of knowledge: *sensitivity* and *intellect*, then, the dialectical unity between elementary and dialectical logics, between thinking which mirrors things in their relative stability and thinking which mirror things in their absolute self-dynamism.

It is true that the human mind could not have succeeded to reach the utmost height of categories, if it had lacked the metaphoric energy of words. Notions develop first as metaphors. But notions do not wear out alongside the metaphors they were born of and the myths they were embodied in; they develop and get richer.

The metaphoric function of words was indispensable in setting up the philosophical categories. The correlation of the words "visible-invisible" and the categories "phenomenon-essence" is undeniable. The former are the magic prehistory of the latter. But the metaphor was only the *tool* in the formation of categories. It is the dialectics of the very real which, through the mediacy of social practice, governs the development of the logical forms of knowledge in people's minds.

Dialectical thinking implies a steady and considerable effort. Left unguided, thinking tends to stoop to one of the opposite properties, neglecting the other. To think dialectically is to overlook neither of the two opposite, inseparable, asymmetric and self-dynamic features of every thing.

5. TAUTOLOGY AND PARADOX

Tautology and paradox are the two extremes between which thinking develops. Thinking begins by tautology and reaches its climax in paradox. Below tautology there is nothing but life, beyond paradox there is only speech. Through speech, life is converted primarily to tautology.

In the beginning, tautology was concentrated, condensed; it was implied in a synchretic, plurivocal, polysemantic word, uttered in the presence of the thing concerned, all while being pointed at. Later on, when people

were compelled to convey information transgressing the bounds of the indicable present, the original notions also began polarizing their spheres to subjects and their contents to predicates. Notion turns into judgment and implicit tautology becomes explicit. The synchretic notion of "stone" becomes the tautological judgment "stone is stone" The index-finger becomes the subject of the tautological judgment, and its predicate speaks of the quality of the thing denoted. It is asserted in this tautology that *all* stones have the *property* of being stones. Therefore thinking, through the act of judging, has already started moving from mirroring phenomena of the same kind to mirroring their general essence. Therefore, the subject and predicate of a tautology are neither the same repeated notion, nor two distinct notions; they are the sphere and content of the same notion. A notion turns into a tautology when its sphere becomes the subject and the content — its predicate, and when the content of the notion is asserted about its sphere. The subject points to the *totality* of things of the same kind, whereas the predicate refers to their general *property*. That is why an *assertion* casts light only on the sphere of the subject and on the content of the predicate.

In a tautology, thinking keeps moving, it proceeds from the subject to the predicate, from what it knows to what it does not know yet. Through tautology, thinking identifies things and thus provides the starting point to any judgment. Tautology does not lack information completely, but its amount of information is minimum. Information increases concomitantly with the growing number of judgments. Whereto? — To the point it reaches the universal paradox of dialectical judgment. Whereas tautology contains minimal information, the paradox involves maximal information.

By its *cognitive content*, thinking develops continuously, but by its *logical form*, it can only move between tautology and paradox. Even the great truths that appear first as paradoxes finally turn into commonplaces. The now still paradoxical truth that thinking does not govern speech, but on the contrary, that speech governs thinking, will also become commonplace, just like others did, such as: "It is not the Sun that revolves about the Earth, but the Earth that revolves about the Sun" or "It is not the Gods who made people like them but people who made Gods like them". It is obvious that, when turned into a commonplace, a paradox is no less truth, but it is no longer a piece of information, news or novelty. Paradox is not contradictory to truth, but it is inconsistent with the commonplace. Still, the dialectical judgments reflecting the universal fact that "the world is both finite and infinite", that "man is both matter and spirit", or, in other words, that "every S is P and non-P" stay paradoxical forever to the human mind, that has been accustomed by thousand-year practice to judge in a monistic way. In everyday life you either have

what you need, or you have not... Dialectical judgment, where two contradictory predicates are referred to the same subject at the same time and in the same correlation marks off the logical limit of human thinking and *not the gnoseological one*. Dialectical judgment is no contradiction *between* thinking and reality, it reflects the very opposition *in* reality.

By continuously moving between the identifying predicate of the tautology and the contradictory predicates of the paradoxical dialectical judgment thinking is getting constantly richer.

6. THE SOPHISTS

It is too often that sophism is mistaken for sheer falseness, or even more annoying, for paradox.

Man can state both commonplace and paradoxical truths and errors such as: falsehood, lie, paralogism, sophism, nonsense by outdistancing the environment when the means of production and communication are improved. Consequently, there are several kinds of errors and the sophism is but one of the species of the genus.

There is, for instance, a difference between the following erroneous sentences: "there was hail in Bucharest yesterday" and "some lies are true" and "the sister-in-law of logistics is a symphony". The first is false, the second absurd, and the third makes no sense. False is a sentence which under particular circumstances can be true; absurd is a sentence which under no circumstances can be true; and nonsense is a sentence which cannot even be checked as it makes no sense. The false violates reflection, the absurd violates the logical structure of thinking and nonsense is an arbitrary mixture of words. Falseness is a knowledgeable mistake, the absurd — a logical mistake and nonsense — a linguistic one. Falseness concerns the relationships between ideas and things, the absurd concerns the relationships between ideas and ideas and nonsense the relationships between words and words.

The absurd is error deriving from incorrect and illogical sequence of ideas. Since logical structures and laws reflect universal properties and relations of things, the statement deviating from logic "reflects" the impossible. When logical incorrectness is unintentional, we are dealing with a paralogism (beside logic), but when it is aimed at deceiving we are dealing with a sophism (abuse of intelligence). The lie is the ethical form of falseness, the sophism — the ethical form of paralogism.

Thus, for instance, when pragmatists substantiate their world outlook on the idea that any statement is true, they make a sophism, which derives from the incorrect reversal of a true statement: "Any truth is a useful

statement". It would have been correct to say: "Some useful statements are true" since the notion "useful statement" is more comprehensive than the notion of truth. The absurdity of this sophism is quite clear from the following reasoning:

— every useful statement is true
— some lies are useful statements

— some lies are true.

A "true lie" is a contradiction in point of terms, hence an absurdity. The sophism is, therefore, the logical and ethical modality of falseness and consequently, a supreme and definite error. Error is dealt with by the theory of knowledge, paralogism by logic. Lie and sophism pertain to the field of ethics.

Finally it is high time for us to give up an old-standing prejudice: "the sophists" in the pre-Socratic Hellenic philosophy were... Sophists. That is not quite so! The slander was launched by the aristocratic reaction against these representatives of ancient democracy and humanism. Ancient Sophists were great dialecticians, they were no petty tricksters. True that Hellenic Sophists indulged at times in devising some sophism. But what has made them respectable to this day are their paradoxes and not their sophisms. Paradoxes (beside current opinion), which were the first to draw attention on the dialectics of reality and its reflection in people's minds, make them topical to this day. Whereas sophism is maximum *error*, paradox is, on the contrary, maximum *truth*. By becoming commonplace, a truth does not turn into error, but it is no longer information. As opposed to commonplace, the paradox contains maximum amount of information. The sophism is an error which seems true in the beginning, whereas paradox is a truth which seems an error in the beginning. While the sophisms of ancient philosophers have but an anecdotical value today, their paradoxes, such as, for instance, that movement means that a thing is and is not at the same place and at the same time, are equally dramatic to human consciousness today. Modern mathematics can measure the *quantity* of movement, but it cannot explain its *quality*. By computing the exact moment when Achylles will reach the tortoise, the question *when?* is answered, but the question *how?* is left unanswered. Movement is dialectical and it can be spoken of only paradoxically.

7. INTUITION

Intuition is generally referred to as immediate, instantaneous, illogical and ineffable knowledge. Intuitionists oppose it to the intellect, which, they suspect, has pragmatic intentions and reveals in things what itself

has put into them. They hold that the essence of the world is undetectable unless the inopportune presence of the intellect in the act of knowledge is avoided.

In their opinion, animal intelligence changed to human intellect through the mediacy of speech as an inevitable consequence of the original sin.

The intuitionists, who failed to free themselves from the long-standing prejudice according to which the world and thinking are heterogeneous, claim that man is meant to live, and not to think, that man knows the world and resides therein through living, and not through thinking. Struck by the *absolute movement* of things they no longer see the *relative stability* of moving things and strive to avoid the conflict between the stability of logical forms and the dynamics of the world. Instead of looking for the solution above the stabilizing intellect, in dialectical reason, intuitionists seek it below, in immediate living. They mistake the affective tension involved in the act of knowledge for knowledge itself. The *aversion* for error and *attraction* to truth, which mobilize the scholar in his research-work, are but *secondary* prerequisites of knowledge; the logical representations and forms of thinking continue to be primordial.

But the concept of intuition has not only this living meaning, advanced by the advocators of the "philosophy of life", but other meanings, largely acceptable, as well.

Intuition is first of all the *sensory* mirror of the individual aspect of things. This is the primary meaning of the notion of intuition: intuition as an unmediated image of the real.

However, by far more complex is the *inductive* meaning of intuition, intuition as a qualitative leap from the sensory perception of phenomena to the logical apprehension of their essence. Any induction is an intuition; and this is so since knowledge does not pass from mirroring individual things to reflecting the genus they belong to by a strictly logical process, but by an infralogical, instantaneous and ineffable one. Only its outcome is formulable, and it is first rendered by Archimedes' famous "eureka"... No matter how long research is or how many logical forms it implies, induction is accomplished through intuition. *The seeking* is processual; *the finding* is instantaneous. The leap from assessing a *finite* number of facts to the discovery of the essence of the *infinite* number of facts can be accomplished only through intuition.

Intuition may be involved in the course of reasoning, too. In that case, graphically speaking, it occurs at the boundary separating and joining the premises of a deduction to its conclusion. There were many scientists to say that, after countless unsuccessful attempts at solving a particular problem, the solution occurred to them quite suddenly at a moment when they were no longer thinking of it. What happened? By constantly changing

the place of the various premises of reasoning, and steadily changing their inter-relationships, thinking came to arrange them in such a way as to enable the instantaneous emergence of the solution at a given moment. Such an intuition may leave the wrong impression that the new truths are gifts of grace, not the conclusions of some premises; that there is the inspiration of some superhuman forces that lie at the back of new truths, not the highly human labor of scientific thinking. Such an intuition has nothing mysterious in it; it occurs by shortcircuiting the premises. Only a mathematician can intuit a mathematical solution, whereas biologists have intuitions on the lives of organisms.

Finally, intuition whereby we come to grasp mentally the universal is also acceptable. It is categorical or philosophical intuition whereby thinking passes from the reflection of various degrees of generality to the reflection of utmost generality. But is that intuition? Obviously yes, since transition from the various degrees of generality, which are infinite in number, to utmost generality, which has no superior genus, is no longer gradual, but it gets accomplished by a leap.

In conclusion, the concept of intuition may assume the following four meanings: living intuition, sensory intuition, inductive intuition and rational intuition, both descendant and ascendant. The characteristic feature of any intuition is its sudden occurrence by a leap.

Dialectical materialism argues the supremacy of living intuition, but it denies the important part played by various forms of intuition in knowledge.

8. DEFINITION

Avoiding definition has become a common attitude. Everybody avoids definitions as if to define were to stop knowledge, not to reinforce it.

It seems that the main source of the growing mistrust of the value of definition is the obscure confusion between "defined" and "definite". People today fear not to brake off the evolution of ideas. They prefer operational and relational definitions, since relations stay "relative" whereas substance, essence, quality tend to become absolutized. But definitions do not prevent, on the contrary, they are a prerequisite for the evolution of ideas, much the same as *moving* things do not prevent the *movement* of things. If there were no relative stability of the quality of things, there would be neither interrelationships nor absolute development in them. Pure movement is nothingness. Something always changes and this "something" has a relatively stable quality, that can and must be defined.

Definition concerns precisely this dialectical unity between the relative invariance of essential properties and the steady variability of phenomenal properties.

Defining is the logical *operation* whereby the main points of a notion become apparent; the *definition* is the logical *form* derived thereof, where structuration occurs of the reflection of the self-correlation between one genus of things, which is indicated by the subject of the defining judgment, and the general properties of those things, which are rendered explicit by the predicate of the defining judgment.

The logical form of a definition is a judgment, where the definable notion is the subject, the defining notion is the predicate and the affirmation joining them is the copula. Notion alone is no form apt to reflect the self-correlation between things and their general properties. Similar knowledge can be constructed only by means of a judgment, where the sphere of the definable notion becomes subject and its content — the predicate. Therefore, whereas a notion is an enveloped definition, a definition is a developed notion. Definition raises notion to concept-level. Everybody uses more or less correctly the notion of "book", but few are those who have reached the respective concept. Only after we have learned that "a book is a nonperiodical of at least 49 pages" can we come to grasp the concept.

Let us consider for a while the logical structure of this definition. By the very fact that it is to be defined, the notion "book" is a genus notion, viz., considered from the viewpoint of its sphere, which subsumes the group of phenomena turned into object of thinking; the defining notion involves the general characteristics whereby the definable species is *identical* with all the other species of its genus proximus, as also the specific properties by which the definable species differs from all the other species of its genus proximus. In other words, the book, like all other "printings" is a printed text.

But, unlike other printings, the book is nonperiodical and has more than 48 pages. A 50-page periodical is not a book. Worth noting is that in such a definition, as the content of the definable notion is asserted of its sphere, the light of affirmation falls only on the sphere of the definable notion and the content of the defining notion, irrespective of the grammatical form of its linguistic rendering. From the logical point of view, the noun "printing" in the analyzed definition has an attributive meaning; it means "property of being printed".

The identity sphere of the definable notion and the defining notion was the major source of discredit of the definition: any definition is mere tautology.

However, on a thorough-going analysis tautology itself is already an incipient definition. Whoever says "a book is a book" asserts that any book has the characteristics of a book. In spite of all appearances, the subject of such a judgment is not identical to its predicate. There can be

only a sphere identity, not an identical content. The subject refers to the *thing* sharing the same *general characteristics* with those things.

The definition can do no more than state the major notes of the notion's content performing the logical function of predicate in a tautology. That in a tautology thinking does not progress but proceeds towards further knowledge has also been recorded in the spoken language which places a stylistic stress on the predicate — the seat of information surplus — : a book is *a book*!...

In a definition, the course of thinking from subject to predicate, from sphere to content, from general to analytic is ultimately filming the actual birth process of a particular species which, apart from the characteristics of genus proximus also acquires its specific characteristics. By reflecting the genesis of the object concerned, the definition also traces the lines for the people's action on the course of events. A new species can be obtained by changing the individual characteristics of a group of things until these come to individualize new special characteristics whereby the changed group of things differs from all the other species of the same genus.

Since the defining notion is no more than the content of the definable notion they both refer to the same things. But prior to definition, the content of the definable notion is still implied, indistinctive and loose. The definition adds not to the object of knowledge, but to the *objectivity of knowledge*. A thing can stay the same for a long time, but people's knowledge on it improves.

The definition does not place artificial barriers among things, it reflects logically the real ones.

Our truths are not *objects*, but subjective knowledge *of* objects. Still, the subject's creative contribution to the knowledge of the object does not nullify the objectivity of truths; on the contrary, it provides substantiation to it. To refute subjectivism is not tantamount to ignoring the subject's creative activity. Indifferent rather than hostile, the object compells the subject to an uninterrupted initiative in knowledge and mastery.

The speech and the tool enabled man to keep things at a distance and thus set out by devising ever deeper explanations, on the laborious road conducive to the discovery of ever deeper essences.

What has always been astounding to non-dialectical thinkers is the indisputable fact that the world can be understood and mastered. "One may say", Albert Einstein wrote, "that the eternal mystery of the world lies in its comprehensibility".

"The world is comprehensible" looks like a "miracle" only if one overlooks the fact that the subject is an object gradually acquiring self-consciousness. There is not only a "biological metabolism" between the organism and the environment, but also a "gnoseological metabolism" between subject and object. Scientific truth is the human means to know

the laws of the world. There is not only opposition, but also unity between subject and object, the object turning into subject in an uninterrupted interpenetrational process. However, there are still theorists who refute man the possibility to know humanly everything that is *independent of man*. The opposition man-nature appears to them more real than their unity.

If between subject and object no connection is to be found, then every "object" is normally a creation of the subject. Consequently, truth is reducible to one of the countless possibilities of logical coherence or of experimental efficiency.

Undoubtedly, there are no logical forms or scientific truths. These are human constructs by which people are able to discover the world such as it is independent of mankind. There is no one to doubt today that "each of our abstract ideas is in a sense anthropomorphic". But "anthropomorphic" means "what assumes human form". In other words, human is the "form" whereby the object is reflected by the subject; this form is not only "anthropomorphic", but also "isomorphic", with the essential in reality. The cognitive forms that human mind devises mirror the world such as it *is* not as it *appears* to various beings. Black, for instance, is only psychologically a color: physiologically, black is no more than minimum excitation, whereas physically it is lack of irritation. By dialectically negating sensitivity, reason no longer reflects "things", but essential "properties" and "relations" in reality. Einstein exaggerates when stating that " the whole science is no more than everyday thinking drainage".

In fact, "drainage" does not refer to thinking, but only to sensitivity — sensations and emotions — which all while contributing to the crystallization of the logical forms of knowledge, also disturbs them to a smaller or larger extent. Reason does not rule out subjectivity, on the contrary, it makes use of the subject's constructs to discover the world such as it is. The forms of rational reflection, which are themselves subjective, do not rule out subjectivity, but the sensory mirrorings of phenomena. Objectivity is not reducible to inter-subjective agreement. Society is but the necessary environment for the individual subject to develop its knowledge, but this knowledge reflects the very object. Man-nature homogeneity does not nullify man-nature opposition; it cannot suspend man's continuous duel against nature. And this duel is nothing else than the uninterrupted process whereby man gets closer to and away from nature; whereby he knows and masters it, for the subject is not only a mirror of the object but also the builder of objective knowledge. Definition should be sought and not avoided.

Seriousness is opposed to unseriousness and not to humor; humor is opposed to lack of humor and not to seriousness. A man lacking humor altogether is comical rather than serious. Buster Keaton had the humor to impersonate one of the most comical characters: Malek, the man who never laughs...

Humor is a specifically and deeply human attitude. The only being that has succeeded — by the tool and speech — to keep the world at a distance couldn't fail to ultimately reach humor. It is through humor that the superiority of subject over object, of spirit over matter, of thinking over thought, of the creator over all his creations, even over himself becomes manifest. Through thinking man transgresses the present of things and penetrates into their future, and through humor he laughs at what it is in the name of what it *should be*. Humor punishes, often sympathetically, all downfall of the spiritual tension into material inertness, all abandonment of seeking for what has already been found, all supervaluation of the finite at the expense of the infinite. What prevents us from advancing are not the things, but our exaggerated devotion to them, nullification of the distance that spirit needs in order to keep things in the service of man. Were this distance between himself and the world annulled man would become deprived of his most human capability: the ability to act consciously on the course of things and events. Humor is one of the most valuable correctives of any dogmatism and fanaticism. Humor is one of the spiritual feedbacks helping an advanced society to self-regulate its development. Humor is a purely cultural phenomenon.

Animals have no humor. They kill, they do not laugh. There are no opponents in nature that can become contenders, and possibly collaborators. There are only partners and enemies in nature. Only people are capable of turning their "natural aggression" into a "cultural" one. Through humor, physical attack is substituted for a spiritual one. Humor attempts to mend without destroying. What cannot be mended causes despair, not humor. Humor is an optimistic attitude. The irremediable is tragical, not comical. Tragicomedy mirrors despair transcended through humor, the survival of spirit following disaster, confidence in the subject's self-repair, and not in the possibility of mending the object. Humor is a polemic attitude to everything that brakes the development of society and of human individuality. Non-contending humor is an enjoyable pursuit, humorouslessly contending is a moral undertaking. Only their fusion can generate a genuine work of art.

Through humor, man's rule over nature is completed by his rule over himself. Humor is a fundamental approach of human consciousness, a natural expression of wisdom, a spontaneous philosophical attitude to

life. Humor brings forth the contrast between real and ideal with a view to criticizing the real; this is also obvious when analyzing the means it resorts to: the comical, the irony, the parody and the pun.

Whereas humor is a subject's attitude whereby spirit rises above matter, the *comical* is a situation of the object whereby matter hampers spirit. Humor laughs, but the comical is laughable. The comical is staged humor. Through the comical, humor gets again the upper hand over matter which tends to stop its flight. The comical in Eugène Ionesco's "The Bald Primadonna" resides in the materiality of speech which can no longer convey any meaning to spirit; speech has turned into idle talk.

Through *irony*, humor asserts that the real is ideal or that the ideal is real to more obviously emphasize the laughable character of the real as against the ideal. "You, smart one!" is used only to point out the collocutor's stupidity.

The *parody*, the use of a familiar tone on solemn occasions, is aimed only at laughing at some shallow forms, deprived of all content.

The *pun*, superposition of two remote meanings by superimpression of their sound rendering, ridicules the real that one of the meanings refers to, on behalf of the ideal, referred to by the other meaning.

If deprived of humor, mankind would advance at a far slower rate and with a far greater waste of moral and material effort.

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